Safety Maintenance and Production

EST. 1901 AMERICA'S PIONEER MAGAZINE IN ITS FIELD

IFTY CENTS NOVEMBER, 1954

WA
PA

If you Read Between

...he Prescribes for Yo

In Industry's efforts to reduce costly eye accidents and other accidents to head, body, limbs and equipment, the number of workers who wear safety prescription glasses is increasing. Management profits and workers profit by such a program.

In some areas the services of the ophthalmic professions have not been utilized to verify the lens properties of prescription safety glasses, fit the glasses to the individual worker and maintain them in proper adjustment. These functions which are the responsibility of the professions, are necessary in assuring the maintenance of safety standards and visual efficiency on the job. About one-fourth of the states now require that corrective-protective glasses shall be available to workers only wh vision is made for these adequa fessional services.

Our own corrective-protective meet the most rigid safety require The Ⓐ† on Super Armorplate is your assurance that they are heat-strengthened, sufficiently thick and impact resistant. As for frames, only corrosive-resistant metal or non-flammable plastic is used in their fabrication. The Ⓐ trademark appears on frames, also.

We are inviting the cooperation of safety directors everywhere in seeing that the full cycle of professional services is rendered in connection with safety prescription glasses. When you uti-

Safety is Our business! Safety is your business. Prescribing, checking prescriptions, fitting of prescriptions is the business of the professions. Always specify Ⓐ trademarked lenses and frames to assure the maximum safety for your employees. There is none better.

American Optical
Ⓐ SAFETY PRODUCTS DIVISION

†T. M. Reg. by American Optical Company

SOUTHBRIDGE, MASSACHUSETTS • BRANCHES IN PRINCIPAL CITIES

(For details, use Key # Y-1 on card on page 67)

ONLY ONE PAIR TO A CUSTOMER

THE EYES OF YOUR WORKMEN ARE YOUR MOST PRECIOUS TOOLS

AVY

GES

ND SAVE MONEY TOO

y's swing to MAGIC LENS TISSUE is one of the greatest success stories of eet is over 50% larger than usual, and ngth. Yet MAGIC costs you less. $8.40 carton). The compact Dispenser is only tick it to the wall.

IAGIC HEAVY-DUTY Cleaning Station eas or where ANTI-FOG protection is any eyewear.

cleaning and anti-fogging fluid. Pressure- ications per can. Each 12-oz can contains ed 6-oz. bottles, and pressure packing makes IAGIC CAN EQUALS 4 SUCH BOTTLES.

fill and priced at only $12.50 per carton of

enser locks can in place. No pilferage pos- t costs only $5.95. Releases each sheet only enormously reduces waste.

eated, is a superb, super-strong, wet-strength hing on plastics, and no lint. Instead of a Heavy Duty carton contains 18 giant refills -size interfolded sheets 8" x 4¾") at only

for your old cleaning stations FREE, or

nformative story of sight and eye safety is told in our Booklet "ONLY ONE PAIR TO A CUSTOMER." Safety men tell us they find it invaluable. Write for this booklet today.

MAGIC IS A TRADE-MARK OF THE SILICONE PAPER COMPANY OF AMERICA, INC.

Magic BOTH BEST FOR YOU

T. M. REG. U. S. PAT. OFF.

The Silicone Paper Company Of America, Inc.
General Offices: 75 E. 45th St., N. Y. 17, N. Y.

(For details, use Key # Y-2 on card on page 67)

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If you Read Between the Lines

...he Prescribes for Your Profits, too!

In Industry's efforts to reduce costly eye accidents and other accidents to head, body, limbs and equipment, the number of workers who wear safety prescription glasses is increasing. Management profits and workers profit by such a program.

In some areas the services of the ophthalmic professions have not been utilized to verify the lens properties of prescription safety glasses, fit the glasses to the individual worker and maintain them in proper adjustment. These functions which are the responsibility of the professions, are necessary in assuring the maintenance of safety standards and visual efficiency on the job. About one-fourth of the states now require that corrective-protective glasses shall be available to workers only when provision is made for these adequate professional services.

Our own corrective-protective glasses meet the most rigid safety requirements. The AO† on Super Armorplate lenses is your assurance that they are heat-strengthened, sufficiently thick and impact resistant. As for frames, only corrosive-resistant metal or non-flammable plastic is used in their fabrication. The AO trademark appears on frames, also.

We are inviting the cooperation of safety directors everywhere in seeing that the full cycle of professional services is rendered in connection with safety prescription glasses. When you utilize these services and standardize on high quality AO trademarked lenses and frames, you are assured of an investment which can pay for itself many times over in both human and dollar values!

Safety is our business. Safety is your business. Prescribing, checking prescriptions, fitting of prescriptions is the business of the professions. Always specify AO trademarked lenses and frames to assure the maximum safety for your employees. There is none better.

American Optical
AO SAFETY PRODUCTS DIVISION

†T. M. Reg. by American Optical Company

SOUTHBRIDGE, MASSACHUSETTS • BRANCHES IN PRINCIPAL CITIES

(For details, use Key # Y-1 on card on page 67)

ONLY ONE PAIR TO A CUSTOMER

THE EYES OF YOUR WORKMEN ARE YOUR MOST PRECIOUS TOOLS

SAFEGUARD THEM BETTER — AND SAVE MONEY TOO

1 American industry's swing to MAGIC LENS TISSUE (Silicone treated) is one of the greatest success stories of the Safety field. Each sheet is over 50% larger than usual, and has twice the tearing strength. Yet MAGIC costs you less. $8.40 per Carton (6 refills per carton). The compact Dispenser is only $2.50. No screws. Just stick it to the wall.

2 And here is the MAGIC HEAVY-DUTY Cleaning Station for heavy-grit areas or where ANTI-FOG protection is necessary—on plastic or any eyewear.

Modern science's finest cleaning and anti-fogging fluid. Pressure-packed. About 1,400 applications per can. Each 12-oz can contains twice as much as old-fashioned 6-oz. bottles, and pressure packing makes it go twice as far. So, 1 MAGIC CAN EQUALS 4 SUCH BOTTLES. That is the first saving.

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Indestructible steel Dispenser locks can in place. No pilferage possible. This superior cabinet costs only $5.95. Releases each sheet only 1-by-1, not in bunches, and enormously reduces waste.

The paper, not silicone-treated, is a superb, super-strong, wet-strength tissue. Naturally, no scratching on plastics, and no lint. Instead of a few sheets in little boxes, Heavy Duty carton contains 18 giant refills (each refill has 760 jumbo-size interfolded sheets 8" x 4¾") at only $11.60 per carton.

Ask to exchange MAGIC for your old cleaning stations FREE, or order anew—*now!*

FREE BOOKLET. The informative story of sight and eye safety is told in our Booklet "ONLY ONE PAIR TO A CUSTOMER." Safety men tell us they find it invaluable. Write for this booklet today.

MAGIC IS A TRADE-MARK OF THE SILICONE PAPER COMPANY OF AMERICA, INC.

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new!

LEHIGH

Therma*liners*

insulate the foot against heat and cold

You can wear these shoes in foundry heat or in sub-zero cold, without the slightest discomfort from external temperatures. The entire upper is padded with a layer of foamed vinyl containing millions of tiny sealed-air bubbles. The same principle that insulates your home against winter cold and summer heat, thus acts to maintain normal body-temperature inside these shoes. We use the foamed vinyl insulation because it will not absorb moisture, perspiration, oil or odors. Wherever feet are exposed to freezing or excessive heat, Lehigh Thermaliners will provide new comfort and improve job efficiency. They include the same time-tested steel toe protection as all other Lehighs.

Developed expressly for

Hot Mills
Refrigerator Workers
Ice Plants
Miners
Utility Field Crews
Yard Men

– or wherever feet are exposed to extremes of temperature.

LEHIGH
SAFETY SHOE COMPANY
EMMAUS, PA.

(For details, use Key # Y-3 on card on page 67)

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EST. 1901

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By courtesy of ACF Industries, Inc.

AMERICA'S PIONEER MAGAZINE IN ITS FIELD

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It's Safe to Say

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★ COMFORT, WELL-BEING AND PRESTIGE

IT HAS been said that man's primary wants are food, drink, comfort, the urge to love and be loved, safety to life and freedom from pain. All other wants are secondary, including the all-important desire to be appreciated—commonly known as morale.

One wonders how many men in the accident prevention field realize that in their daily lives they are actually helping to supply both the primary and secondary needs. Certainly, they help to provide not only life safety to all within their official sphere, but comfort, escape from pain and danger, prolonged contact with loved ones and, yes, even social security in the broader aspects of that overworked phrase.

A forceful reminder of that fact was voiced last month at the National Safety Congress by Jean Wade Rindlaub, vice president of one of the nation's largest advertising agencies. In her thought-stimulating address, Mrs. Rindlaub reminded her audience of professional safety leaders that in "selling" safety day by day, they actually are selling comfort, and are talking straight to man's age-old desire to be admired, to have something to be proud of and to come out on top.

In essence, safety is all of those things. Protection against accident is the first step toward achieving all the other goals which beckon to mankind.

Many leaders dedicated to the achievement of safety in industry report a deep sense of frustration in that they aren't properly "appreciated" by management. In our opinion, any safety man capable of selling the working staff should be able to convince the managerial level that in selling safety he is selling comfort, well-being and personal prestige as well.

When an accident victim upsets a plant safety record, not only does he suffer the usual consequences of pain and reduced earnings but, automatically, personal prestige takes a nose-dive.

Mrs. Rindlaub emphasized that accident preventionists can make safety everybody's business, not only in the plant but in the homes and in the various communities of the country at large. She suggested a procedure known as "brainstorming," found so effective in her own organization. A group of people from widely varied jobs and from different levels of age and importance come together to brainstorm a problem—to think up new ways to solve it. There are definite rules for brainstorming and the main rule is "anything goes"; "no criticism"; no pessimism. It seems that many new ideas bloom and blossom in the atmosphere of such meetings where there is a noticeable absence of haphazard criticism. And some of the ideas have grown into many worthwhile projects.

The safety field too can benefit by such "brainstorms" particularly if they remember that they are not dealing with dull statistics of frequency and severity. Instead, they are dealing with well-being, comfort and personal prestige. National advertisers long ago found nothing to replace the appeal to the creature desires of mankind. Safety, too, can be glamorized if we remember that it enables us to enjoy the really good things of life. H. A.

PATENT PENDING

Model 175 —Medium size
Model 176 —Large size

WATCHEMOKET eye SAVERS

New "TUC-OVER"

FEATHERLIGHT SAFETY CLIP-ON

- **PROTECTION from IMPACT and GLARE** — Shatterproof lenses in unbreakable frame.
- **TWO SIZES FIT ALL PRESCRIPTION GLASSES FRAMES** — Plastic clips . . . never scratch lens or frame . . . hold "Tuc-Over" firmly in place on metal or plastic frames.
- **"FEATHERLIGHT"** — "TUC-OVERS" can be worn all day because the unbreakable frame is polyethylene . . . a tough, resilient plastic so light it floats.
- **SAFETY LENSES** — Shatterproof "Eye-Savers" Methacrylate lenses, .080" thick, are optically perfect to prevent eye-strain due to distortion . . . protect prescription lenses from breakage or pitting . . curved lens avoids contact with prescription lens.
- **REPLACEABLE LENSES** — "Eye-Savers" lenses can be changed by the wearer without tools . . . fit snugly in resilient plastic frame.
- **OVER-EYES PROTECTION** — Visor extends back to forehead . . . gives over-eyes protection from impact, dust, perspiration and glare.
- **HANDY TO USE • HANDY TO CARRY** — "TUC-OVERS" snap on or off in a jiffy . . . never break or bend if dropped . . . fold to the size of one lens . . . individually packed.
- **CHOICE of LENSES and FRAMES** — Lenses available in clear (C) and in light green (G-2) or medium green (G-3).

Featherlight

Shatterproof Lenses

Will Not Pit

Visor Protection

Frames available in two sizes: Model 175 Medium for 46mm lenses.
Model 176 Large for 52mm lenses.

Frame colors: translucent white or green.

For details, see your Authorized Eye Savers Supplier or write direct

Quality Eye Protective Equipment ***Made by the Leaders in Plastics***

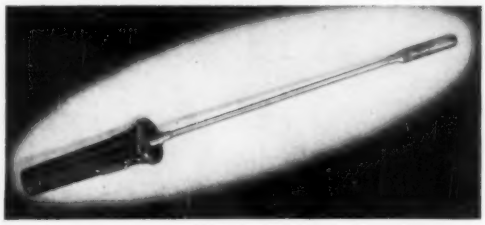
WATCHEMOKET OPTICAL CO., INC.

238 West Exchange St., PROVIDENCE 3, R. I. *In Canada: Levitt-Safety Limited, Toronto 10, Montreal 26*

(For details, use Key # Y-4 on card on page 67)

POWER LINES—UNAVAILABLE? —INCONVENIENT?

HERE'S THE ANSWER!



MODEL MVX BATTERY OPERATED

EXPLOSION PROOF

INSPECTION LIGHT

Check These Features:

- **3 cell standard vapor proof flashlite case**
- **Flange type bulb in transparent Lucite dome**
- **Bronzed coil spring and socket assembly**
- **Dome and retainer completely gasketed**
- **Joints silver soldered and tight**
- **Rust-proofed brass stem only 5/16 inch in diameter**
- **Can be ordered in any length required**
- **Light in weight (20 ounces)**

FOR SAFE, RAPID INSPECTION OF:

55 gallon oil barrels

5 gallon drums

Other containers for volatile liquids

UNDERWRITERS' APPROVED

Specially designed for rapid inspection of containers for volatile liquids, the essential safety feature of the Model MVX vapor proof lite is the coil spring underneath the bulb. It releases the bulb from contact whenever the dome is broken, or removed for bulb replacement.

The brass stem gives complete flexibility for your specific requirements, being available in any length (although usually furnished in the standard 14" size), while its 5/16" diameter combines strength with ease of use.

The stem terminates in an adaptor head composed of an ordinary flashlite reflector, bakelite plate and lip gasket, making a positive joint at the battery case end.

Write for literature and prices.

Specify Model MVX with stem length desired.

STEWART R. BROWNE Manufacturing Co., Inc.

258 BROADWAY, NEW YORK 7, N. Y.

(For details, use Key # Y-5 on card on page 67)

Check List of Aids to Production:

Through Safety—

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SEND THIS PERSONAL SAFETY MESSAGE

TO EVERY ONE OF YOUR EMPLOYEES!

Safety is made attractive...vivid...colorful...

each worker clearly sees how safety benefits him.

You get enthusiastic safety cooperation instead of

tolerance...from every employee...every month.

YOUR
Safety News
THE JOHN DOE COMPANY, INC.
PROTECT YOURSELF
3
WAYS
There are three safe practice ways that do the most good in keeping free of accidents, all based on your personal desire to know safety and keep yourself safety-minded by studying the hazards of your work. They are
1 Make sure all guards are in place and working and wear the personal protective equipment your job requires.
2 Learn the safe way to do a job and do it just that way.
3 Report, avoid or eliminate all unsafe
As we see it: Safety is part of every job
John Doe

Size, 5½" wide x 7½" deep

...talks the worker's language!

Full of color, pictures, humor and snap, it makes safety interesting and down-to-earth. 12 times a year it covers every accident hazard. Nationwide, leading industrial firms state it's the *only safety paper their employees will read* . . . and take home to their families.

It gives you the advantages of personal contact, saving time and money. When it prevents one Lost Time accident, it has more than paid its cost for the year. Try it . . . it works!

Your Imprint Here!

makes YOUR SAFETY NEWS your own publication . . . a good-will ambassador . . . another force for better industrial relations.

Every employee feels bucked-up by a note from the boss. If you desire, your facsimile signature can be printed here.

Your Signature Here

NOTE:
Your Safety News is designed to promote better employer-employee relations. Every item is carefully weighed from this viewpoint.

INSIDE PAGES
(pages 2 and 3)

IN YOUR EMPLOYEE'S INTEREST

Your employee's self interest in his own safety is always emphasized. Even household hazards are covered to keep him safety-conscious every minute, not only in the plant, but at home and on the way to work.

CHOCK-FULL OF ILLUSTRATIONS

Artwork is carefully chosen to lodge home each point. The cartoon style makes YOUR SAFETY NEWS as familiar and as welcome as the Sunday supplement.

THE "FOLKSY" APPROACH

Keeping the contents folksy, adding the grace note of humor, delivers your safety message with a nudge instead of a bludgeon. Your monthly chat gets enthusiasm instead of tolerance.

VIVID COLOR

Generous use of color gives sparkle, adds to the attention-riveting qualities of YOUR SAFETY NEWS. Each issue is as lively as any news-stand favorite.

HOW TO ORDER

YOUR SAFETY NEWS may be ordered with either the Standard imprint or with your Own Special Imprint. The Standard Imprint reads PLEASE COOPERATE FOR THE SAFETY AND HEALTH OF ALL . . . signed . . . A SAFE WORKER.

You can personalize YOUR SAFETY NEWS with the name of your firm and the name or facsimile signature of a company representative as illustrated. Give full instructions for your Special Imprint on the order blank below.

Item (1) FIRM NAME. Please show the name of your firm exactly as it is to appear.

Item (2) INDIVIDUAL NAME OR SIGNATURE, if desired. On a sheet of white paper, please show, in black ink, the individual name or signature, if desired, which is to appear each month on the first page of YOUR SAFETY NEWS.

NOTE: Although a personal signature is effective, some firms substitute: SAFETY DEPARTMENT, YOUR SAFETY COMMITTEE, A SAFE WORKER, etc.

Clip Out & MAIL TODAY!

ALFRED M. BEST COMPANY, Inc. • 75 Fulton Street, New York 38, N. Y.

Gentlemen:

Until further advised, please publish for us each month_____ copies of YOUR SAFETY NEWS at _____¢ each.

☐ Special Imprint ☐ Standard Imprint

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Name_____

Firm Name_____

Address_____

City_____ Zone_____ State_____

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3,001 to 6,000 copies	3¢ each	2½¢ each
1,001 to 3,000 copies	3½¢ each	3¢ each
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200 to 500 copies	5½¢ each	4½¢ each
100 to 199 copies	6½¢ each	5¢ each
25 to 99 copies	*	5½¢ each

* 5½¢ each plus $3.00 per month for Special Imprint

F.O.B. New York, N. Y.

THE Future SHOWS

Atlantic City, N. J. *Nov. 7–11*

Industrial Housekeeping Safety Guild (Eastern Sanitary Supply Group) Trade Show and Convention (Hotel Ambassador). William F. Plowfield, Executive Director, 4 S. 15th St., Philadelphia 2, Pa.

Portland, Oregon *Nov. 18–19*

Governor's Sixth Annual Industrial Safety Conference (Masonic Temple). Leonard A. Weston, Director, Accident Prevention Division, State Industrial Accident Commission, Public Service Bldg., Salem, Oregon.

Spartanburg, S. C. *Nov. 18–19*

Seventeenth Annual South Carolina Accident Prevention Conference (Spartanburg Memorial Auditorium and Wofford College). J. D. Watson, Jr., Safety Director, South Carolina Industrial Commission, Columbia, S. C.

Chicago, Ill. *Jan. 24–27*

Sixth National Plant Maintenance and Engineering Show (International Amphitheatre). Clapp & Poliak, Inc., Show Management, 341 Madison Ave., New York 17, N. Y.

E. Lansing, Mich. *Feb. 14–17*

Fourth Annual Industrial Ventilation Conference (Michigan State College). James C. Barrett, Michigan Department of Health, Division of Occupational Health, Old Dewitt Road, Lansing 4, Mich.

New Orleans, La. *Feb. 27–Mar. 1*

Southern Safety Conference and Exposition (Jung Hotel). W. L. Groth, Executive Director, P. O. Box 8927, Richmond, Va.

Philadelphia, Pa. *March 8–9*

Twenty-first Annual Philadelphia Regional Safety and Fire Conference and Exhibit (Broadwood Hotel). Walter W. Matthews, Managing Director, Philadelphia Safety Council, 17th & Sansom Streets, Philadelphia 3, Pa.

Pittsburgh, Pa. *March 29–31*

Thirtieth Annual Western Pennsylvania Safety Engineering Conference & Exhibit (Hotel William Penn). H. H. Brainerd, exec. manager, 605 Park Bldg., Pittsburgh 22, Pa.

Indianapolis, Ind. *March 30–31*

Eighth Central Indiana Safety Conference & Exhibit (Claypool Hotel). Indianapolis Safety Council, 320 N. Meridian St., Indianapolis, Ind.

New York, N. Y. *April 11–15*

Twenty-fifth Annual Greater New York Safety & Exposition (Hotel Statler). Harold C. Mesch, general chairman, Greater New York Safety Council, Inc., 60 E. 42nd St., New York 17, N. Y.

Cleveland, Ohio *April 26–28*

Twenty-fifth Annual All Ohio Safety Congress & Exhibit (Hotels Cleveland and Hollenden). A. W. Moon, Congress Manager, Industrial Commission of Ohio, Safety & Hygiene Div., Columbus 15, Ohio.

Grand Rapids, Mich. *April 26–28*

Twenty-fifth Annual Michigan Safety Conference (Pantlind Hotel and Civic Auditorium). R. H. Goring, Executive Secretary, Michigan Bell Telephone Co., Detroit, Mich.

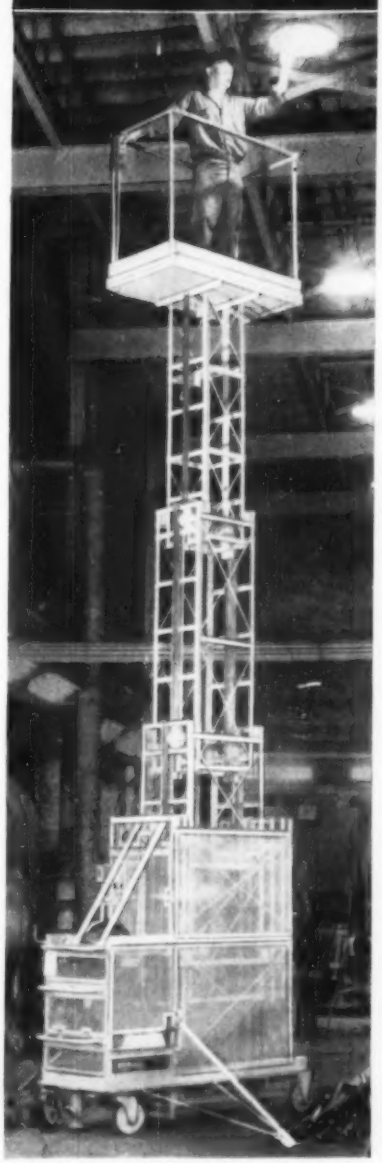
Chicago, Ill. *May 16–20*

Materials Handling Exposition (International Amphitheatre). Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N. Y.

THE MAN WHO FEELS SAFE WORKS BETTER

Economy HI-REACH TELESCOPER

ENGINEERED FOR STRENGTH STABILITY AND SAFETY



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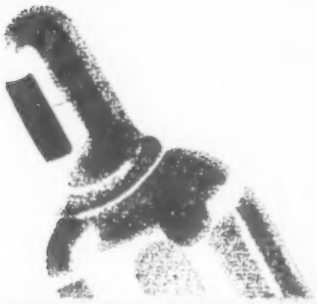
SAFETY MAINTENANCE

How Shall We Mark Compressed Gas Containers?



Acetylene	C_2H_2	Hydrogen cyanide	HCN
Air	AIR	Hydrogen fluoride	HF
Ammonia	NH_3	Hydrogen sulphide	H_2S
Argon	Ar	Illuminating gas	GDV
Boron trifluoride	BF_3	Krypton	Kr
Butane, Propane or their mixtures	LP-Gas or LPG	Methane	CH_4
Carbon dioxide	CO_2	Methyl bromide	CH_3Br
Carbon monoxide	CO	Methyl chloride	CH_3Cl
Chlorine	Cl_2	Monochlorodifluoromethane	$CHClF_2$
Coal gas	GDV	Natural gas	MET
Cyclopropane	(no formula)	Neon	Ne
Dichlorodifluoromethane	CCl_2F_2	Nitrogen	N_2
Difluoroethane	$C_2H_4F_2$	Nitrogen peroxide	N_2O_4
Difluoromonochloroethane	$C_2H_3ClF_2$	Nitrosyl chloride	NOCl
Ethane	C_2H_6	Nitrous oxide	N_2O
Ethyl bromide	C_2H_5Br	Oxygen	O_2
Ethyl chloride	C_2H_5Cl	Phosgene	$COCl_2$
Ethylene	C_2H_4	Propane, Butane or their mixtures	LP-Gas or LPG
Ethylene oxide	C_2H_4O	Propylene	PRY
Fluorine	F_2	Sulphur dioxide	SO_2
Helium	He	Sulphur hexafluoride	SF_6
Hydrogen	H_2	Town gas	GDV
Hydrogen chloride	HCl	Vinyl chloride	C_2H_3Cl
		Xenon	Xe

By F. R. FETHERSTONE *

OWNERS OF compressed gas cylinders feel the best way to indicate the material contained in a cylinder is to apply a legend (the written word) so that it will be legible. This view is supported by Sectional Committee Z48 working under the procedures of the American Standards Association, which recently approved a revision of American Standard X48.1, entitled "American Standard Method of Marking Portable Compressed Gas Containers to Identify the Material Contained."

In this revision the standard has been expanded to discuss containers for use in international trade. At a conference sponsored by the International Organization for Standardization (ISO), a resolution was adopted recommending to the participating organizations that each one adopt a standard for marking compressed gas containers, and that these standards include a common reference to the marking of containers for use in international trade. In principle the conference concurred upon the use of legend as a basic method for indicating the material contained and rejected proposals to use colors for that purpose.

The American Standard as recently revised is in complete harmony with the recommendations of the international conference. It is a very brief standard and is therefore quoted in full on page 12.

What About Color?

American Standard Z48.1–1954 makes no reference to the use of colors, although this method of indicating container content is frequently proposed. This proposal has often been discussed at meetings of safety groups, societies with some interest in the field of compressed gases, laboratory technologists, anesthetists, and others whose opinions reflect a limited experience in the broader fields of use for all compressed gases. Certain of our governmental agencies have been strong proponents for the use of color coding, but even the largest users of compressed gases among them are consumers of a small percentage of the commodities that are normally charged into compressed gas containers. There are more than 60 compressed gases that are shipped or stored in the types of containers that we are discussing, and there are only 7 primary colors. This means that in order to utilize color for identification purposes, combinations of colors would have to be employed. Also various shades of the same color would be needed.

* Secretary-Treasurer, Compressed Gas Association, Inc. Vice President, Liquefied Petroleum Gas Association, Inc.

"American Standard Method of Marking Compressed Gas Containers To Identify The Material Contained"

Z48.1—1954

1. Scope. 1.1 Requirements for marking portable compressed gas containers, not exceeding 1000 pounds water capacity, to identify the material contained.

2. Definitions. 2.1 A portable compressed gas container, for the purposes of these standards, is any container having a water capacity of 1000 pounds, or less, that is constructed in accord with the specifications of a recognized authority, (such as the specifications of the Interstate Commerce Commission, the Unfired Pressure Vessel Code of the ASME, the API-ASME Unfired Pressure Vessel Code, etc.) and intended to contain a compressed or liquefied gas, as defined in the Regulations of the Interstate Commerce Commission. Containers of commodities that are exempt from regulation by Federal or State authorities are not included.

3. Marking of Containers. 3.1 Compressed gas containers shall be legibly marked with at least the chemical name or a commonly accepted name of the material contained. Marking shall be by means of stenciling, stamping, or labeling, and shall not be readily removable.

3.2 Wherever practical the marking shall be located at the valve end and off the cylindrical part of the body.

3.3 The height of the lettering shall be not less than one twenty-fifth (1/25) of the diameter of the container with a minimum height of one-eighth (⅛) inch.

4. Marking of Containers for Use in International Trade. 4.1 Compressed gas containers for use in international trade shall be legibly marked by means of stenciling, stamping, or labeling and as noted in 3.2, 3.3, 4.2, and 4.3. Such markings shall not be readily removable.

4.2 With the name of the material contained in the language of the country in which the container is charged.

4.3 With the international chemical formula, or other agreed abbreviation. *(See table on page 11).*

5. Regulations. 5.1 None of the requirements contained in this standard are intended to conflict with or to supersede Federal or State Regulations such as the following:

5.1.1 Regulations of the Interstate Commerce Commission for the Transportation of Explosives and Other Dangerous Articles by Land and Water in Rail Freight Service and by Motor Vehicles (Highway and Water);

5.1.2 Regulations of the U. S. Coast Guard for the Transportation, Storage or Stowage of Explosives or Dangerous Articles or Substances and Combustible Liquids on Board Vessels;

5.1.3 The Regulations of the Food and Drug Administration for the Enforcement of the Federal Food, Drug and Cosmetic Act.

For several reasons this use of color would introduce additional possibility of error in the determination of cylinder content. The people who use compressed gases would have to learn what the various color combinations mean. Even if every person had the same degree of visual acuity or color perception, there would be a wide variation in the accuracy with which a color coding system would be translated. And we know at least that people do not all have the same degree of color perception. In fact, many people are totally color blind.

Changing Colors

We know also that painted cylinders used in locations where they were exposed to impure industrial atmospheres have actually changed color due to reaction between the polluted atmosphere and the cylinder paint. While this is admittedly unusual, it is eliminated when the color of the container is not used to denote its content. Also shades of color vary considerably under different kinds of light such as mercury vapor and fluorescent lights.

The use of color on cylinders certainly has its place for it is essential to good housekeeping, especially as a company matter. However, color should only be used for secondary purposes, such as segregation, or for ownership identification. It should not be used as a primary method for content identification.

There always has to be an exception to the rule, so there is one instance where color is used for selective purposes with the concurrence of the compressed gas industry. Medical gas producers and users have subscribed to the practice of applying a color area to the shoulder of the small medical gas cylinders which are used exclusively for anesthetic purposes. This practice is described in Simplified Practice Recommendation R 176-41, "Color Marking for Anesthetic Gas Cylinders" published by the U. S. Department of Commerce. The recommendation applies only to medical gas cylinders which approximate 4 and one-half inches in diameter by

26 inches long, and to a very limited number of gases, 8 gases or mixtures of gases, to be exact.

A Contradiction?

It might seem that acceptance of this practice by the medical gas industry is a contradiction of the broad principles outlined in American Standard Z48.1–1954. Such is not the case, however. All medical gas cylinders are marked or labeled for identification of the material contained as a requirement of the Federal Food and Drug Act. This fulfills the requirements of American Standard Z48.1–1954 for the use of legend as the most satisfactory means and primary means for identification of cylinder content. The application of color to the shoulder of these medical gas cylinders is therefore secondary.

In companies where a variety of gases are produced it is customary for each to have a color coding system of its own. But such color coding is used for segregation purposes, for the facilitating of storage, for container ownership identification, and for plain good housekeeping and maintenance practices. This appears to be the logical use for colors on compressed gas containers.

Now, how can the gas user help to overcome the occasional complaint that gas cylinders are not marked satisfactorily to identify their content? A simple and effective way to remind the gas supplier of this negligence is to refuse to accept delivery of gas cylinders unless they are clearly and legibly marked. The gas supplier is the fellow to talk to about it. He will willingly cooperate as he has a sincere desire to have his products utilized safely, with sound judgment, care, and understanding.

NOTE: The "American Standard Method of Marking Portable Compressed Gas Containers to Identify the Material Contained, Z48.1–1954," may be obtained from the American Standards Association, 70 East 45 Street, New York 17, N. Y. at 15 cents per copy. Minimum order 25 cents.

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(For details, use Key # Y-8 on card on page 67)

By GEORGE H. REPPERT, Engineer
National Elevator Manufacturing
Industry, Inc., New York, New York

MATERIALS HANDLING SERIES
other articles December & January

Safety Code Changes For Elevators, Dumbwaiters, Escalators

THE REVISION of the Safety Code for elevators, dumbwaiters and escalators now being made is actually a complete new code, which is expected to be available about the first of January 1955. As the changes and additions which are being made are extensive, it will be possible to cover only the most important ones.

The revised code will consist of 12 parts, each part divided into a number of sections. Each part, section and rule will carry its own numbered title which will make it possible to find any desired rule quickly. All design formulas, curves and laboratory test specifications have been removed from the main body of the code ordinarily used by the inspectors and have been placed by themselves in separate parts. The curves formerly appearing in the rules have been replaced by tables.

Here is a very brief outline of 29 of the most important changes which have been made.

1. Detailed requirements have been added to cover means for venting smoke and hot gases from the hoistway to the outer air in case of fire.

2. Requirements for safe access to machine rooms have been specified in greater detail with particular reference to access across roofs. If the roof has a slope exceeding 15 degrees from the horizontal a permanent horizontal walkway at least 2 feet wide with a standard railing will be required.

3. All counterweights are required to run in the hoistway of the elevator to which they are connected.

4. Metal guards or railings are required between adjacent pits, where there is a difference in floor level.

5. An enclosed stop switch will be required in the pit of every elevator.

6. The runby, or the distance the car or counterweight can travel after the car reaches its bottom or top landing until they strike their respective buffers, has been limited to 24 inches for cars and 36 inches for counterweights.

7. Ladders will be required for access to pits over 4 feet deep, where the access is from the bottom landing door only.

8. Hoistway gates will be prohibited and hoistway unit system interlocks will be required on all hoistway doors, except on freight elevators not over 15 foot rise equipped with vertically sliding hoistway doors. Pull straps will be required on both the outside and inside of manually-operated, vertically sliding, bi-parting, counterbalanced doors of elevators operated from the landings.

9. Vertically sliding, bi-parting, counterbalanced doors, if power operated and arranged for sequence operation to prevent passengers tripping over the lower door section, will be permitted for passenger elevators.

10. The use of center-opening, two-section, horizontally-swinging hoistway doors is limited to car switch-operated freight elevators and to automatic and continuous pressure operation freight elevators, not accessible to the general public, which are located in factories, warehouses, garages and similar buildings.

11. Landing sill guards, consisting of a smooth metal plate extending below the landing sill the depth of the landing zone plus 3 inches, will be required for all passenger elevators with leveling devices.

12. Hoistway door emergency keys and car emergency release switches will be prohibited. To permit safe access by inspectors, maintenance and repair men to the tops of cars, and to pits where the only access is by means of the lowest hoistway door, the code will require

installation of a constant pressure key type hoistway access switch at the top landing and at the bottom landing located immediately adjacent to the hoistway door opening.

Operation of these switches will permit operation of the elevator at slow speed with the hoistway door open at the landing where the key switch is located and the car gate or door open. However, all other doors will be closed and locked and any automatic car leveling device will be inoperative. In the case of elevators which can be started from outside the car, all car and hall operating devices and all power operation of the landing doors and car doors or gates must be made inoperative when the key access switch is operative.

In addition to the hoistway access switch, the code will require an up and down, constant pressure operating device located on top of every elevator car to operate it at slow speed for inspection and maintenance, providing all hoistway doors are locked shut, car doors or gates are closed, and all car and hall operating devices, automatic leveling

and power door operating devices are inoperative. Separate means may also be provided on top of the car to operate power door devices and car leveling devices for the purpose of inspection, testing and maintenance. In addition, an emergency stop switch, manually opened and closed, is required on the top of all elevators.

13. The code will contain a new section covering requirements for power operation of hoistway doors and car doors and gates by both continuous pressure, momentary pressure, and by automatic means with requirements for door re-opening devices under certain conditions.

14. The requirements for guide rails, guide rail buckets and their supporting structure have been extensively revised and expanded. Permissible rail loads have been based on bracket spacings. For certain rail sizes, permissible loads have been increased for short bracket spacings and decreased for longer spacings. Charts are included to determine the permissible loads. They also indicate when a given size of rail must be reinforced, if used for loads exceeding that permitted for the available bracket spacing.

The rules will permit welding to secure the rails to their brackets and the brackets to the building supporting structure. The rules cover the strength and design of the building structure supporting the guide rails. This has unfortunately been overlooked in many cases in the past.

15. Detailed requirements have been included to cover the minimum stroke, load rating and design of spring buffers. They call for the installation of much heavier springs than formerly used. For oil buffers, the stroke and retardation will hereafter be based on 115 percent of rated car speed. The amount the oil buffer plunger can be compressed when the car is level with the terminal landings has been reduced. Each buffer will be required to have a marking plate giving the maximum and minimum loads for which it is suitable and data on the oil to be used.

16. Welding will be permitted for connections between the members of car frames and counterweight frames provided it is done by certified welders and conforms to the appropriate standards of the American Welding Society. The allowa-

ble stresses in car frame members have been increased.

17. Working platforms on top of cars are prohibited together with apparatus and equipment inside of cars not used in connection with its operation. Ventilating fans are not permitted to be mounted inside the car on brackets. Side emergency exits are prohibited in cars if the space between adjacent cars exceeds 2 feet, 6 inches. Car door electric contacts are required on all side exit doors. Keys for such doors are not permitted to be kept in cars, but are to be maintained by the owner in a location where they are readily available only to qualified persons.

Car doors are required at all car entrances of automatic operation passenger elevators and at any car entrance remote from the operator of differently operated passenger elevators. For freight elevators used to carry automobiles or power industrial trucks, vertically sliding car gates are required. Vertically sliding car doors or gates are permitted on passenger elevators subject to certain restrictions.

Restrictions are placed on the installation of sound deadening or decorative linings inside of car enclosures which would present a fire hazard. Such linings are permitted only if made of non-combustible or slow burning materials. In the latter case the lining must be bonded flat to the enclosure and shall not be padded and tufted. All light bulbs or tubes for lighting the car must be guarded to prevent injury to passengers from breakage of the bulbs or tubes.

18. Requirements covering the stopping distances of sliding type car safeties have been greatly simplified. One curve in the standard shows the maximum and another the minimum allowable slide with rated load in the car. This change makes it unnecessary for the inspector to first determine what type of sliding safety is used. There is also a table giving the allowable sliding distances for various governor tripping speeds.

Requirements have been added for a car safety, using an auxiliary safety plank located below the car frame and provided with an instantaneous safety with a conventional oil buffer located between the safety plank and the car frame plank channels. This type of safety is limited for use for car speeds of not over 500 f.p.m. In-

stantaneous safeties of the conventional type will be permitted for car speeds up to and including 150 f.p.m.

Rail lubricants or coatings which will reduce the holding power of the car safety are prohibited and the

manufacturer of the safety is required to attach a plate to the safety to show the characteristics of any lubricant he recommends be used. If any other lubricant is used, an overspeed safety test with rated load is required.

19. All car safety overspeed governors must be sealed after test. If they are painted after testing and sealing, the bearings and rubbing surfaces must be kept free of paint and a hand test made to determine that all parts operate freely.

Governor overspeed switches and switches operated by the car safety mechanism must be the mechanically-opened type as well as those on the governor. The latter are required to remain open until manually reset, and the former must not reset unless the car safety mechanism has been returned to its off position.

20. Partitions, installed in cars to reduce the car area to comply with the passenger load rating, must be permanently bolted, riveted or welded in place. Gates or doors cannot be used for this.

Freight elevators are classified under 3 load ratings:

Class A—Elevators whose loads are moved on and off car by hand or by hand trucks whose weight, including the load handled, is not over one-fourth the elevator rated load.

Class B—Those handling automobile trucks or passenger automobiles.

Class C—Those handling power industrial trucks.

The manufacturer is required to install a metal plate in the car to show the class of loading for which it was designed. Its use for other types of loading is prohibited except that Class A loading is permitted on elevators designed for Class B or C loading.

The code will permit carrying employees on freight elevators not accessible to the general public, provided the elevator is designed for a minimum-rated load not less than that for a passenger elevator of equal platform area, provided that the hoistway doors conform to passenger requirements, and provided the vertically-sliding bi-parting counterbalanced type are power operated and arranged for sequence operation.

21. All driving machines of rope-suspended elevators must be traction type, except that uncounterweighted drum machines are permitted for freight elevators of limited rise and speed, and screw type machines are permitted for either passenger or freight service, under speed limitations.

22. Rope, rod, wheel, crank or lever operating devices are prohibited. A freight elevator may be operated to a truck floor level not over 5 feet, 6 inches above a landing with the car gate and the landing door at that floor open. All car emergency stop switches must be manually opened and closed, and not dependent on springs. This applies to automatic operation elevators as well as to all other types.

The circuit voltage of electrical equipment in the hoistway and on the car is limited to 300 volts for all types of operation, with provision for higher voltage electrical equipment if the current in the system is so limited as not to be dangerous. In other locations a maximum voltage of 600 volts is permitted except that higher voltages are permitted for driving motors of motor generator sets. The installation of any permanent device is prohibited, unless specifically permitted by the code, which will make any required safety device inoperative. Making any required safety or electrical protective device inoperative, except during tests, inspections and maintenance, is prohibited. On completion of the work such devices must be restored immediately to their normal operating condition.

To prevent door interlocks and car door or gate contacts from being accidentally nullified, the code requires that circuits be wired so that the sticking or freezing of any single magnetically operated switch, contactor or relay, or the occurrence of a single accidental ground shall not permit the car to start if any hoistway door is open or unlocked or any car door or gate is open.

Where non-rotating or other types of rectifiers, which are incapable of absorbing the energy generated by the elevator motor, are used to supply direct current from an alternating current supply source to a direct current elevator motor, every controller must be provided with means to absorb re-generated power, due to overhauling loads.

23. Detailed requirements are included for the design, approval and installation of auxiliary rope fastening devices used to support cars or counterweights if any regular rope fastening fails. Such devices are permitted but not required. If used, they must be equipped with a switch to cause the electric power to the elevator to be disconnected when the device functions. Periodic reshackling of the hoist ropes is required once a year for overhead drum machines and every 2 years for drum machines located below, unless an auxiliary rope fastening device is provided.

24. A new part has been added to the code to cover special requirements for sidewalk elevators. The rules cover the hoistway enclosure and protection of all openings including the sidewalk opening.

Sidewalk elevator cars must be enclosed on all sides and have car gates and gate contacts at all openings. The code will permit leaving the solid sidewalk doors open, when the car is not at the sidewalk level; if wire mesh doors which are opened and closed by the car are installed below the solid doors. The screen doors are to be closed at all times when the car is not at the sidewalk level. All sidewalk doors must be opened and closed by the car; and, if provided with locks, they must be unlocked by the car as it approaches the sidewalk level.

All sidewalk elevators are required to have either automatic or continuous pressure operation. Operation of the sidewalk level is permitted only by means of constant pressure buttons or key switches located at the sidewalk level adjacent to the opening along side which the operator stands while opening and closing the sidewalk doors. Constant pressure buttons, where used, must be on the end of a detachable flexible cord 5 feet or less in length.

(Continued on page 28)

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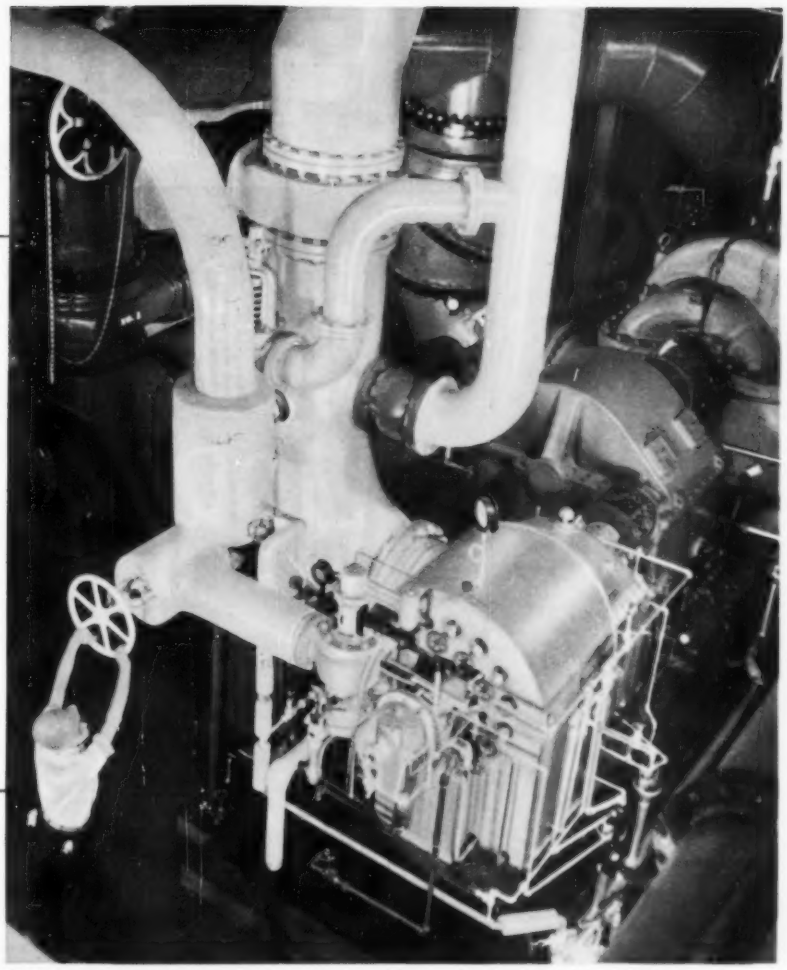

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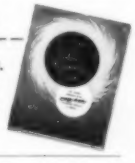

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DIES CHANGED...

in no time at all!

ONE OF THE chief operational problems in certain industries is how to service efficiently large presses and other expensive machinery with dies and jigs, etc. The "down time" of these machines can represent a considerable loss in time and dollars. It stems directly from the time consumed when one die is exchanged for another. Ordinary materials handling equipment does not suffice. A new load-mobile tier lift truck has now been designed to whip the problem. In servicing large presses, this tier lift truck cuts the "down time" to the barest minimum, saving considerable time and money.

How It Works

The way it does this is simply described, and the pictures on this page illustrate how the truck does the job. The operator of the machine secures his new die from the rack storage and places it on the top roller shelf. Then he proceeds to the press where he removes the old die onto the bottom roller shelf and replaces it with the new die. This eliminates extra handling. One trip is all that is necessary.

Into this same truck, the manufacturer has incorporated a new gas-electric drive. It consists of a small 12 H.P., 4 cylinder, 4 cycle gas engine driving a 12 volt D.C. generator. The engine is started by using the generator as a starter motor. The entire unit comes with all the necessary equipment, such as battery, ignition, carburetor, etc. It can also be readily removed from the machine.

Gas-Electric Drive

Gas-electric drive allows for continuous operation. No charger is needed. This unit can replace a 12 volt storage battery and requires no extra control equipment. It has all the advantages of gas and battery power with few of their disadvantages.

3-Speed Control

In this particular installation, the manufacturer also provides a 3-speed automatic control, which allows the operator to start and run the machine with practically no shock from sudden starting. Acceleration is pre-determined and adjusted. All the operator does is push the foot pedal down to the desired speed point, and the automatic control takes over from there. It starts the machine from rest to the maximum speed desired without shock.

Pictures by courtesy of Market Forge Co.

AN INDUSTRIAL BATTERY IS no more dangerous than a bathtub or a ladder, but many persons have been injured by improper or careless use of both. If you observe these simple, commonsense suggestions for working around storage batteries, you can prevent these personal injuries and damage to batteries and equipment. Post this check list where workers involved can see it!

The WHAT HOW and WHY of BATTERY

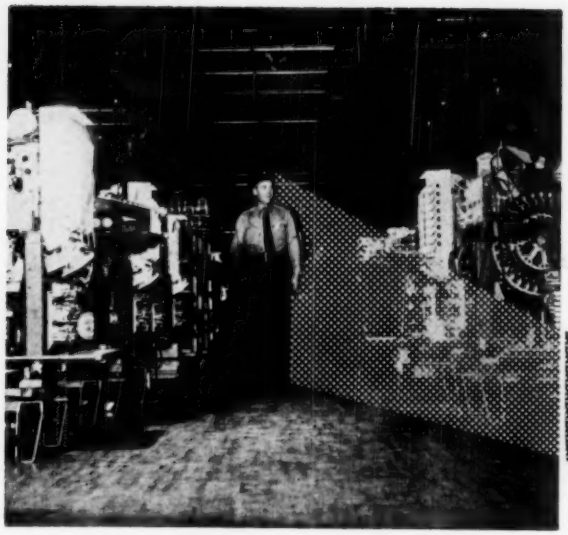
By K. A. VAUGHAN
Manager-Field Engineering
Gould-National Batteries, Inc.
Trenton, N. J.

DO	WHY
1. Wear rubber apron, gloves, boots and goggles . . . when handling, checking, filling, charging or repairing batteries.	To protect yourself against accidental spillage of electrolyte—a mixture of sulphuric acid and water.
2. Keep open flames away from storage batteries—do not check electrolyte level with a cigarette lighter or match. ***Use a flashlight or provide adequate permanent lights.***	The least possible battery damage, if a flame causes an explosion, is a cracked or fragmented battery cover. The worst thing that can happen is for electrolyte to spray on a worker. That man needs urgent attention!
3. Have water readily available for use when electrolyte has been accidentally splashed on the skin or clothing of a worker. Extreme care should be taken in flushing electrolyte from the eye. Use plain water only and report to first aid immediately.	Volumes of water applied quickly, continuously and copiously will prevent serious injury to the skin. Quick medical attention is necessary to assure proper care and treatment.
4. Apply strong neutralizer such as baking soda when acid is spilled on the floor and clean up promptly.	Baking soda will neutralize the acid and make it safe to clean or flush from the floor.
5. Take proper care in melting the sealing compound when preparing to seal a battery. Avoid puncturing the hard surface of partially melted compound with a screw driver or other sharp tool. ***Do not allow compound to ignite by too rapid heating.***	The hot liquid may squirt up and burn hands, face or body of a workman. If it should catch fire it creates the hazard of an open flame. Burning consumes oil in the compound and impairs its useful characteristics.
6. Remove vent caps from nearby cells and blow out each cell to remove gas when preparing to reassemble a repaired cell into the battery. Cover the vent holes with layers of damp cloth before using lead burning equipment on the intercell connectors in order to integrate the cell into the battery circuit. Also use dark glasses to protect the eyes.	Either lead burning equipment or an acetylene torch is normally used and both are hot enough to cause hydrogen, if present, to explode.
7. Be sure to shut off the power when changing or repairing plugs or receptacles that are connected to the charging equipment. This will prevent a short circuit and arcing.	
8. Before removing the terminal lugs from the receptacle, when repairing a damaged or dirty plug or receptacle connected to a battery, the battery circuit must be opened or "broken."	
9. Wear protective clothing and goggles whenever it is necessary to mix acid and water . . . Always ***add acid to water*** and stir constantly to mix well. Always store acid in lead or glass containers.	
10. Always lift batteries with mechanical equipment such as a hoist, crane or lift truck. Move batteries horizontally with power trucks, conveyors or rollers. Make sure that hoist hooks, spreader bars and other tools are of ample strength and properly installed. Cover top of battery with rubber mat or sheet to prevent external short circuits from chains or cables falling on top of battery.	

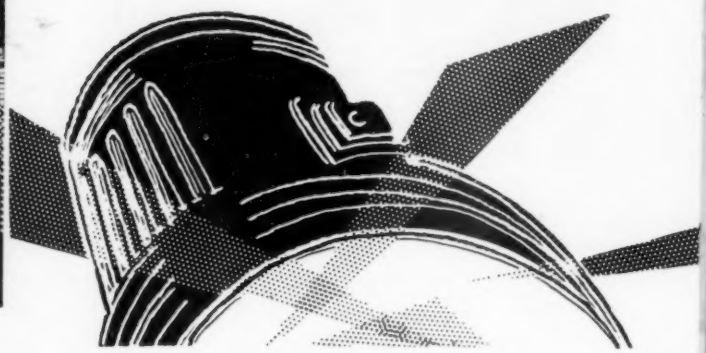
SAFETY CHECKS

• • WHY	DO • • •	• • • WHY
This is a real hazard and should be recognized at all times. Harmful light rays and molten metal can seriously injure workers' eyes.	11. Make sure that charging plugs and receptacles are properly locked and all other connections tight, secure and free from friction.	A loose connection may mean sparking or even arcing with attendant danger of gas explosion.
	12. Disconnect the battery from the truck when doing maintenance and repair work on the motor or electrical system.	The live current may cause arcing or short circuit with its attendant damage to equipment or injury to workers.
A short circuit may injure a workman and arcing may cause an explosion and fire.	13. The Battery Room should be restricted to authorized personnel only . . . persons who are qualified by training and experience in handling batteries.	Untrained or inexperienced persons may unknowingly break normal rules for proper handling . . . endangering themselves, the batteries, and the equipment.
The leads which terminate in the receptacle are live or "hot" with the total voltage of the battery existing across the terminals. If the terminal lugs are accidentally touched together a short circuit will occur.	14. Never lay metal tools such as wrenches on top of an open battery.	Sparking and short circuiting will occur and the battery will quickly be discharged.
	15. Enclose all bare wires and bus bars in the battery room by wire guards, guard rail or other means of isolation from general plant traffic.	Any open high current transmission equipment is a possible hazard to workmen and plant.
Water added to acid will not readily mix and will splash out the acid, due to the great difference in the specific gravity of the two liquids.	16. Check batteries for cracks and leaks. Repair at once.	Electrolyte will spill on floor or equipment and lower battery capacity.
Batteries are a heavy concentrated load and can easily cause painful strains or injure the handlers' feet or hands. Also, batteries may be seriously damaged or electrolyte spilled, if the battery is dropped.	17. When batteries are disposed of as scrap at the end of useful life, drain electrolyte and flush out cells with water.	Junk dealers are not familiar with batteries and use rough methods to break up batteries for lead content. Even an old battery no longer capable of useful life may have enough residual voltage left to cause a spark, if sold filled with electrolyte.
	18. Familiarize yourself as completely as possible with batteries and the proper rules for their charging, handling and maintenance.	Full knowledge of batteries and the dangers of improper handling will pay dividends in the elimination of injuries and damage.

Pictures courtesy Gould-National Batteries, Inc.

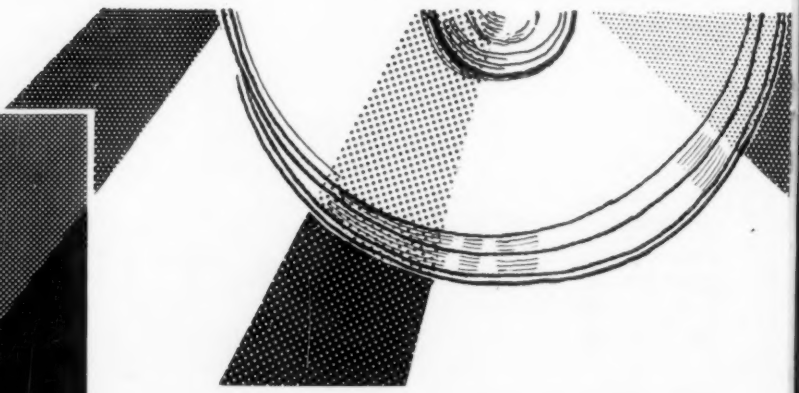


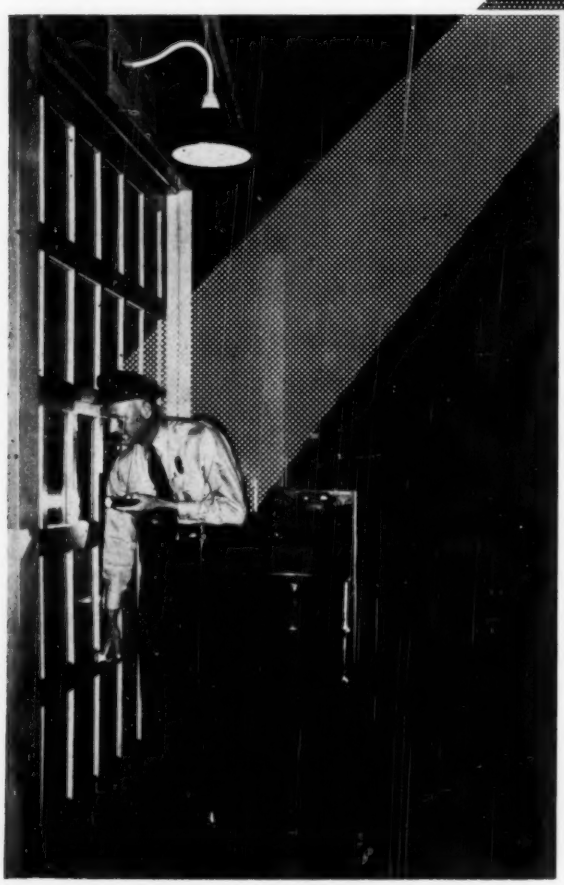
The lonely vigil of this plant protection officer carries him into a machine assembly area. In these early morning hours he must be alert for any irregularity which could spell trouble for the plant.



Safety's Team with the Flashlights

THE NIGHT



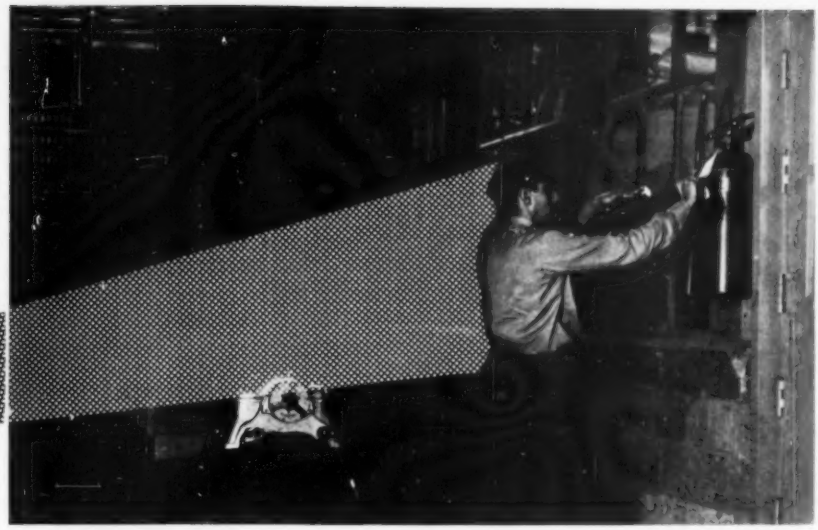


THE MAN STEPPED briskly from the gate house and peered through the darkness at the truck which had to come to a halt in front of him. He greeted the driver, checked his credentials and waved the heavy vehicle through the plant gates. For some time, cars, trucks and pedestrians had been approaching the brightly lit area where the man stood at the entrance to the plant.

The solitary watcher knew exactly what brought each of these night visitors to his post. No one could pass through the gate into the plant until they had shown him proper credentials. For the man was a plant protection officer performing one of his many jobs that spell safety and security at his plant. And his many jobs were only a fraction of the tremendous number handled by the night plant protection force.

While others sleep, plant protection officer shines his flashlight into a warehouse as he opens door to make closer inspection. His far-flung plant beat requires continuous attention.

One of the most important of the many nightly duties of the plant protection officers is to see that all fire-fighting equipment is ready.

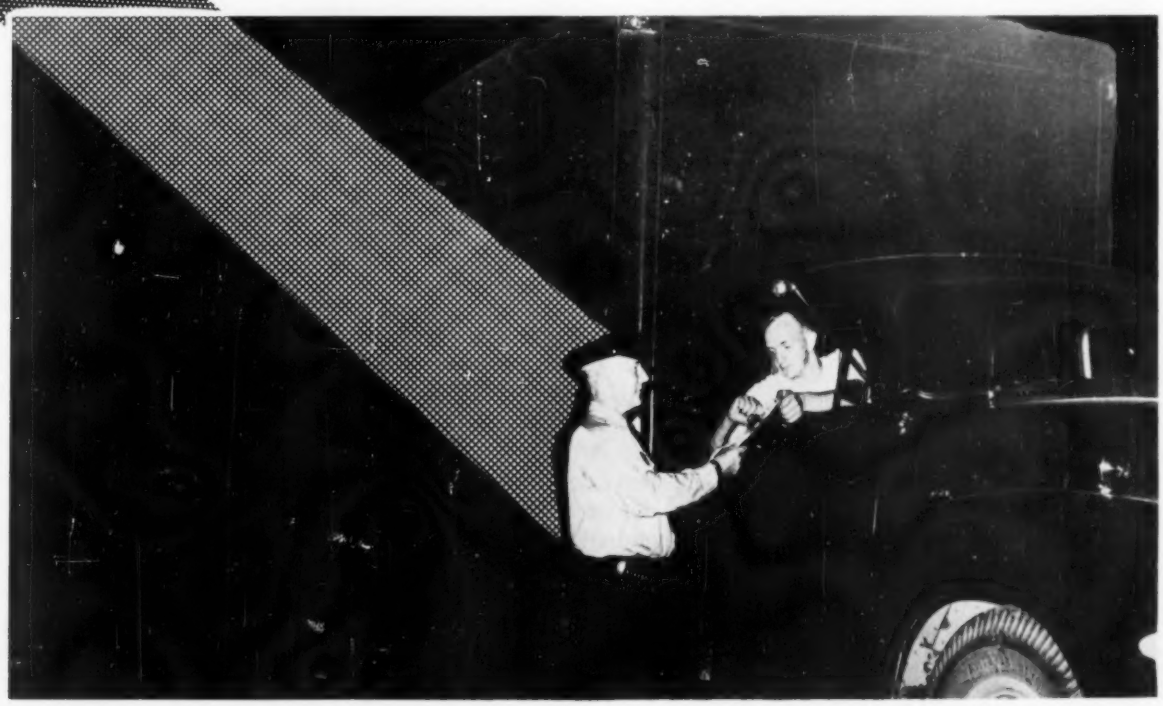


GUARDS

In a busy plant or factory many deliveries of material and outgoing shipments move through the gates at night. Here the plant protection officer checks the credentials of a truck-driver to be certain he is allowed in plant.

Elsewhere, a gray-shirted officer was climbing back into a patrol car to report to plant protection headquarters his position and what he had so far observed on his tour of the plant warehouses. The officer at the headquarters desk acknowledged the message and once more ran his eye over the board above his desk which showed the location of all the sprinklers in the plant area. Nothing showed on the board to indicate that any of the sprinklers were fighting fire, and he turned back to checking the time and position of the patrol cars and officers on foot throughout the plant.

In another part of the plant, another officer took out a set of keys, unlocked the door to a building—a laboratory—and turned on the lights. He walked



slowly around the interior of the building peering into darkened areas with his flashlight. He checked off the sentry-like fire extinguishers that were scattered around the building to see that they were in operating condition. Satisfied that equipment was o.k. and everything else was ship-shape, he locked the door and continued his rounds. He walked over to a roadside power pole to which a large metal box was bolted. He opened the box and moved the handle to operate the manual control equipment which regulated a vital traffic light. Less then five minutes later he had his hands full controlling the steady stream of traffic whose headlights bore down on him. The second shift was over and it was his job to direct the eager-to-get-home motorists onto the highway without accident. In 30 minutes the last of the cars was gone. He returned the traffic light to automatic, locked the box and moved on.

In another building an officer proceeded down empty halls and through empty offices that echoed and reechoed to his lonely footsteps. He looked carefully at machines which continued their work through the night with no human hand to guide them. He checked the pipes and gauges, hidden in deep niches, which indicated the heart of the heating and power system of the building. In other rooms, filled with supplies, he ran a flashlight into every darkened corner watching for that unlikely but always possible wisp of smoke that could spell disaster. Where wiring and electrical parts were stacked, he picked up each of several soldering irons to make certain that they were disconnected.

As he walked his round he carried a time clock. Eighteen to 24 times a night he put this clock to good use, for there are this number of keys in various parts of the plant which have to be turned in his clock during his tour. He is the bulwark against the unexpected.

It's tough duty, constantly demanding absolute attention (a difficult thing when 999 out of 1000 times there is nothing wrong to catch). His hours are odd, many of them coming when everyone else is home in bed. His responsibilities are heavy because he covers an area alone which is covered by many people during the day. And what does the plant protection officer get for his vigilance? It seems logical to suspect that he receives his most satisfying feeling from the knowledge that his contribution to security and safety is an enormous one.

Pictures by courtesy of International Business Machines, Inc.

Gen. Stewart Appointed Safety Council Manager

ANNOUNCEMENT HAS been made of the appointment of Maj. Gen. George Craig Stewart as general manager of the National Safety Council, a new post created to broaden top-level administration of the nonprofit accident prevention organization.

He assumed his new duties this month after his retirement from the Army became effective on Oct. 31. Ned H. Dearborn, president of the Council, said the selection of Gen. Stewart was made after months of screening by a special Council committee of business and safety leaders. Dearborn said the need for expanded activity in highway safety is in part responsible for creation of the new general managership.

Gen. Stewart was graduated from the U. S. Military Academy in 1923 and advanced through the grades to his present rank of major general. Serving on the War Department General Staff when the United States entered World War II, he was assigned to the transportation corps in 1942 and rapidly gained a reputation as a transportation expert.

Gen. Stewart's outstanding abilities in this specialized field were first demonstrated at the Oran landing in North Africa, and he successively became transportation chief for the North African Theater of Operations, chief of the southern lines of communication for the invasion of southern France, deputy chief for the European Theater of Operations, and chief for Army Forces in the Western Pacific.

In 1946 he became commanding general of Ft. Eustis, Va., and commandant of the Transportation School. The Korean War found him as assistant division commander of the 10th Infantry Division.

He served in Korea as commander of the Inchon base for the 1950 invasion landing, and as the assistant division commander of the 2nd Infantry Division.

He returned to the United States in August, 1951, served on the General Staff of the Department of the Army, and was named director of the Office of Military Assistance, Office of the Secretary of Defense, in 1953.

Gen. Stewart has been twice awarded the Distinguished Service Medal, and the Silver Star Medal. In addition, he has received the Legion of Merit, the Bronze Star Medal and several foreign decorations.

Plant Maintenance and Engineering Show

THE SIXTH Plant Maintenance & Engineering Show, to be held at the International Amphitheatre, Chicago, Jan. 24 to 27, 1955, will be the largest in its history. The show will be the first industrial exposition to occupy the huge new $2,000,000 hall which has been built as an addition to the International Amphitheatre. The new hall has 188,000 square feet of space, with large exhibit bays of 2,400 square feet.

Railroad sidings go directly into the new hall and accommodate 10 freight cars simultaneously, and a 2,000 car parking lot will be paved in time for the show. Use of the new hall will permit all general sessions to be held in the arena, directly adjoining the exhibits.

Advance registration cards may be obtained from Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N. Y.

GAS MEN WITH GAS MASKS

(and other modern safety equipment, too!)

AN UNUSUAL system-wide training program for employees in the use of gas masks in field service work has just been completed by the Peoples Natural Gas Company, which serves a large and heavily populated area of western Pennsylvania.

Participating in the training course were field district and divisional service personnel throughout the system, which furnishes gas to over 230,000 customers. The course made a "circuit" of the principal communities where the company operates so that all the company's "students" were able to take part with a minimum of travel and time away from their work. The training program followed previous company "schools" in which service personnel and others studied gas fire-fighting techniques.

The "audience participation" principle was employed in the training—company personnel wore hose masks, operated the apparatus, and in every possible way, took an active rather than a passive role in the classes.

Company officials emphasize that the program achieves a dual aim: "The company will continue to perform the promptest and most efficient gas leak repair service possible, even in normally inaccessible leak locations. At the same time, employees repairing leaks will be afforded maximum protection against the normal hazards of their jobs."

The company has been odorizing its gas as a safety measure for some time, but goes a step further by using hose masks and modern detection instruments to assure customer and employee safety. The hose masks enable employees entering enclosed spaces in their service work to be independent of trapped air that may contain toxic concentrations of fumes or gases or a deficiency of oxygen because a constant supply of fresh outside air is "fed" through the hoses to their masks as they work. A fellow-worker, outside, turns a crank which operates a full ball-bearing, involute-type blower, with double outlet, supplying a constant flow of air through the hoses—either or both, depending on whether one man is working in the enclosed space alone, or two men are teamed. As a matter of safety policy, the company requires that men work in pairs wherever and whenever possible.

The hose mask used is designed to allow freedom of head and body movement, and its facepiece of laminated shatterproof glass affords maximum wide-angle vision and gas-tight

Gas-masked field crew checks manhole, as 3 men stand by for safety.

Employees check for combustible gas concentrations with explosion meter.

Gas company engineer uses CO tester, which colors at trace of CO.

fit. Incoming air, deflected over the inside of the lenses, prevents fogging. The harness is designed to serve as a safety belt, to which life-lines may be attached. The mask bears the official approval of the U. S. Bureau of Mines.

The company has also pioneered or led in other safety practices that have paid off in the best of all ways —excellent safety records. In 1951, the company won the National Safety Award for companies in Group "A" of the Gas Division.

Other Safety Practices

An example of the company's safety-mindedness is the fact that, for many years, management has not trusted the odor of gas alone as a means of leak determination, although its Appalachian gas has always had a distinct odor. The Wolfe safety lamp with aspirator—a standard item of equipment in many industries—is still commonly used for such work, but is being steadily superseded by the explosion-meter because the latter gives a more precise determination and will detect the presence of gas at lower percentages of flammable mixtures than the safety lamp. The meter is a light, compact, portable instrument, designed for continuous on-the-job use, and equipped with carrying straps so that it may be operated with one hand, leaving the other free to manipulate the sampling line and probe tube. This feature is especially useful to men making periodic inspections of curb boxes and street openings.

Also, it is standard safety practice for the company's field service men to test for carbon monoxide—as well as for gas. For this job they carry a light and compact instrument that quickly and precisely detects and indicates CO concentrations of as little as 0.001 per cent by volume in the air. A guard chemical in the instrument removes water vapor, gasoline vapor and other interfering substances.

Over and beyond its use of modern instruments and equipment to promote safety, the company has for some years maintained a continuing program of safety education for employees. And this "safety consciousness" is reflected throughout the organization, from management down. Safety practices and problems are discussed at every one of the company's Monday-morning meetings for all operating personnel. The local district superintendent appoints a safety program committee, which plans 5-minute safety talks as much as 6 to 8 weeks in advance. Both supervisors and wage employees take part.

Usually the superintendent, chief clerk or other supervisor takes the lead in discussing some point of safety. But no attempt is made to discuss safety practices alone, in a general way; instead, a meter reader may talk about problems encountered in his work, or an appliance serviceman may suggest how to check a gas water heater or kitchen range for correct adjustment of burner or pilot.

"All such discussions are arranged with the idea that there is no difference between safe operating practices and efficient operating practices," Safety Director Leo Nuhfer explained in a recent discussion. This attitude towards safety may well be the key to the company's success in promoting safety among employees and the public, and to its enviable reputation for consumer good will. The importance of that, Mr. Nuhfer pin-pointed in another comment: "It is quite obvious that no company can successfully carry out a program to instill confidence in the customers' minds that we are safely marketing our product, unless our own employees are indoctrinated with the idea and are at the same time safe and careful workmen."

Pictures by courtesy of Mine Safety Appliances Co.

Position Wanted

SAFETY ENGINEER. Long experience insurance, private and government; writing, lecturing, training programs; compensation. Excellent practical accident and fire prevention background in reducing frequency and severity. Will travel or relocate. Write to: Box 2153, SAFETY MAINTENANCE, 75 Fulton St., New York 38, N. Y.

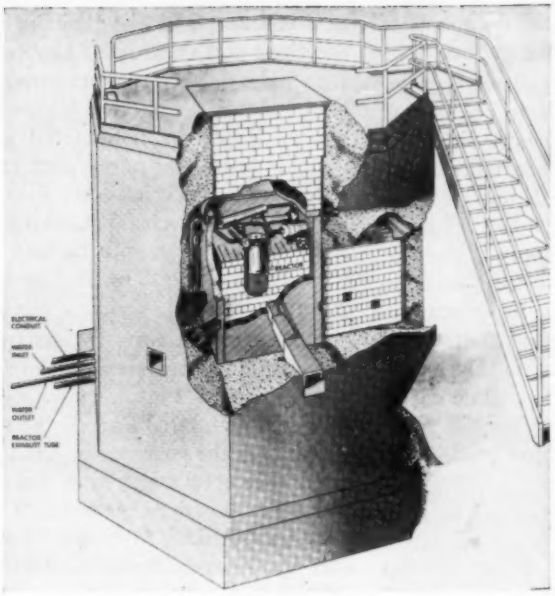
ASME Safety Meeting

THE SAFETY DIVISION of the American Society of Mechanical Engineers will play an important part in the 1954 annual meeting of the Society, scheduled for the Hotel Statler, New York City on November 30th. The Safety Division will conduct a session dealing with safety considerations in the operation of nuclear power reactors and another session on industrial noise and the mechanical engineer.

University Extension Course

ADVANCE PLANS FOR A 1955 Engineering and Management Course designed for business and industrial personnel, have been made by the College of Engineering and the School of Business Administration of the University of California, Los Angeles. The University Extension course will be held from January 31 to February 11, 1955, with sessions meeting throughout each day. Presidents, vice-presidents, engineers, executives, managers, supervisors, foremen, industrial engineers, analysts, cost accountants, and other line and staff personnel, are invited to attend.

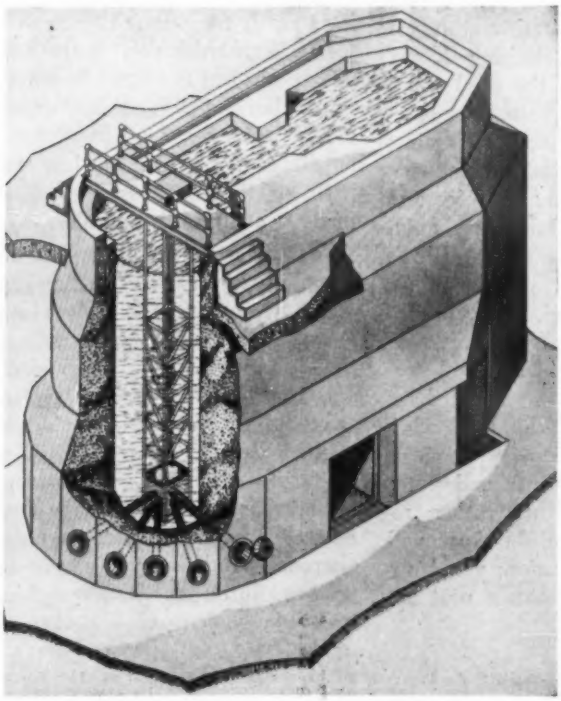
The number of persons admitted to the course will be limited so that each person may have opportunity for individual participation and benefit. Advance registration is required, and registrations will be accepted in the order received. Inquiries about the course, information concerning living accommodations, and requests for enrollment should be addressed to Professor Edward P. Coleman, 4173E Engineering Building, University of California, Los Angeles 24, California. Fee for the course, including all texts, daily luncheons, and three dinner sessions, is $300. The University Extension-sponsored Seventh Annual Industrial Engineering Institute will precede the course by two days and will prove a supplementary conference for persons interested.



A "Water Boiler" and . . .

GENERATE ATOMS SAFELY

A "Swimming Pool" . . .



TWO ATOMIC RESEARCH REACTORS, modified versions of the declassified "water boilers" and "swimming pool" reactors developed at Los Alamos, Oak Ridge and other Atomic Energy Commission installations, have recently been placed on the market. Since the reactors are designed to train beginning atomic research personnel, as well as to be used in basic nuclear research, they have the latest safety devices.

Both units are useful in many types of experiments, neutron and radiation chemistry, biological research, radioisotope production and materials development. The "swimming pool" reactor offers certain safety advantages such as space for bulk shielding, but the "water boiler" reactor is safe for most atomic experiments.

In the "water boiler" reactor, the uranium sulphate fuel is contained in a shell of stainless steel one-sixteenth of an inch thick. Boron control and safety rods extend into the fuel solution from above. The fuel solution, in its steel shell, is also surrounded by a 4-foot cube of graphite reflector, which, in turn, is surrounded by a 4-inch carbon steel shield.

The pressure above the fuel solution is maintained at negative 6 inches of water, as another safety feature, in order that any leakage will be into the reactor gas system rather than out into the reactor room. Hydrogen and oxygen gases, created by fission-induced dissociation of the water in the fuel solution, are diluted with helium to keep the concentration well below the danger point, and are then recombined in a catalyst bed and returned by a closed loop to the fuel solution.

The cooling system of stainless steel tubes dips down into all parts of the fuel solution and maintains the fuel temperature at a constant level below the boiling point. Still other safety features are the octagonal, high-density concrete shield which contains the reactor and its components; aluminum exposure ports that extend to the fuel solution in the center of the reactor; and, the air space within the outside reactor shield, which is maintained at a slightly negative pressure.

The "swimming pool" reactor contains its fuel solution in the water pool which gives it its nickname. The recirculating pool water, which cools the fuel solution, is continuously de-ionized to prevent build-up of radioactivity and; in the event of a power failure, the inlet header will automatically disengage to permit natural convection cooling. Like the "water boiler" reactor, this unit has an outside shield of high-density concrete.

Pictures by courtesy of The Babcock & Wilcox Co.

New Elevator Code

(Continued from page 16)

All wiring outlet boxes and fittings for sidewalk elevators with top openings in the sidewalk must be weatherproof. Slack rope switches, lower terminal stop switches and pit stop switches must be located as far above the pit bottom as practicable.

25. A new section, covering requirements for small passenger elevators and inclined stair lifts in private residences, has been added. A private residence is defined as a separate dwelling or a separate apartment in a multiple dwelling which is inhabited only by members of a single family. Where installed to serve a private residence in a multiple dwelling, the elevator must not be accessible to the other occupants of the building or to the public.

26. Escalator rules have been expanded to cover the protection of floor openings against fire and smoke. Minimum clearances have been specified for all moving parts to which passengers are exposed; and the width and depth of the step tread slots and comb teeth must be kept to a minimum to prevent injury to hands and feet, particularly those of small children. Overspeed governors have been eliminated for escalators driven by a low-slip, alternating current, squirrel cage induction motor.

27. A new part IX has been added, covering in detail the initial acceptance inspection and tests of new elevators and the periodic inspections and tests of all elevators. It includes detailed requirements for field tests of car safeties, governors and oil buffers for both initial and periodic tests. Car safety parts and governors must be inspected once a year, followed by a hand pull-out test and a running test, with no load in the car at slow speed, by tripping the governor by hand.

Once every 5 years for traction machines and once every 2 years for drum machines the car safety must be tested with rated load on the car by tripping the governor by hand at rated speed, followed by a test of the governor tripping speed. The owner is required to have periodic and maintenance tests of the car safeties and governors made in the presence of the inspector by a person qualified to perform such work.

28. Part X of the code outlines general recommendations for the maintenance of the equipment, and contains procedure to be followed where elevator cabs are refinished in the hoistways.

29. Part XI of the code outlines in detail just which of the code rules are to apply when major alterations are made to an elevator. Twenty-two types of major alterations are listed and the rules applying to each are given. The committee feels that this part of the code will be of great assistance to enforcing authorities, owners, and manufacturers. Each one will know, when an alteration is to be made, just what parts of the installation must be made to conform to the rules.

In drafting these requirements for alterations the committee has kept constantly in mind that alterations to existing equipment which increase their safety should be encouraged, and that only rules necessary for safety in the alteration should be applied. If an attempt is made to apply to such alterations too many of the rules applying to new elevators, the owner will not make any alterations; and, thus the rules would tend to kill the goose that was going to lay the golden egg.

From an address delivered at The Greater New York Safety Convention.

"Safety Maintenance" Salutes . . A SAFETY IDEA

Chemical Resistant Clothing

PLATING MACHINE parts has always been a hazardous business since acids and other chemicals play such a large part in the job. Hand protection, in the form of rubber and other types of gloves, has been standard operating procedure for some time in plants such as the one shown here. Now companies, such as International Business Machines, Inc., have begun outfitting the men in their plating departments with new chemically-resistant clothing as well. The work clothing fabric, which has been on the market not much more than a year, gives operators increased protection against the acids and chemicals. The operator above is wearing a shirt and pants of the new fabric as he inspects plating equipment at IBM's Poughkeepsie plant. Other industries including chemicals, steel mills, food processing plants, mining, service stations, electro-plating and storage battery manufacturers have adopted the new clothing. In addition to its resistance to chemicals the fabric gives warmth and water resistance against bad weather; resists wear, moths and shrinkage; will not support combustion; yet, launders readily and retains a neat appearance.

Picture by courtesy of Mine Safety Appliances Co.

Cost of Accidents

COSTS INVOLVED IN accidents, both in dollars and lost man-hours, affect all citizens, not just the companies concerned, W. G. Ennis, deputy commissioner of Connecticut said at the Sixth Annual Conference of the American Gas Association Accident Prevention Committee. It is for that reason that the state and national government must take part in accident prevention work through codes, legislation and workmen's compensation measures.

More than $41 billion has been spent on accidents in the United States in the last five years, according to John V. Grimaldi, Association of Casualty and Surety Companies. Studies show that personal factors contribute to the majority of accidents and that continuous education is needed to improve accident records.

Tailored Program

Gas industry accidents are in the public eye more than those of most industries, A. L. Dowden, Liberty Mutual Insurance Company, told the delegates. He pointed out that 1953 was the fifth consecutive year in which the accident frequency rate of the industry had been lowered. He advocated more effective use of all employee programs, particularly vehicle safety programs that had been tailored to fit particular companies.

Chief Henry G. Thomas of the Hartford Fire Department, was an honor guest—he had just won the annual award of the National Fire Protection Association for the third time. His department now has permanent possession of the trophy for outstanding fire prevention work. He congratulated the gas industry on its safety measures, pointing out that many of the codes and standards established by the gas industry had been adopted by the Hartford municipal government.

Earl H. Eacker, president, American Gas Association, and president, Boston Consolidated Gas Company, stressed the important part that gas industry accident prevention plays in the "Big Picture" of national defense. Production is most essential for both prosperity and defense. If we are to prevent an internal collapse, we must continue to produce more and more with less human effort and at less cost, he said. Accidents are wasteful in human resources and in production. In 1953 it is estimated accidents cost our economy more than $9 billion. Last year the gas industry experienced more than 300,000 man days lost due to accidents, at an estimated wage cost of $3,500,000 to our industry. While the industry has progressed greatly since the late 20's in its safety efforts, such progress is not fully consistent with the industry's growth. Top management must not only believe in safety, but it must insist on it, he declared.

Carl Clements, National Dairy

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IN CANADA: SAFETY SUPPLY CO., TORONTO
(For details, use Key # Y-11 on card on page 67)

Products, gave a graphic demonstration of the cost of motor vehicle accidents, and how they could affect profits and earnings. Good attitudes on the part of drivers was the most important factor in fleet safety, he said. John F. Maerze, Motor Transport Association, stressed the same theme. He advocated periodic physical examinations for drivers. Tests given by competent men should be used to check and qualify men who are to drive particular types of equipment, he said. Different skills were required for driving big trailers than for passenger cars, he pointed out. Such skills were shown in a film, "The League of Frightened Men," based on the qualities that won national awards for drivers in the National Motor Rodeo, staged by a national transport association each year.

N. B. Bertolette, president, Hartford Gas Company, pointed out that safety is a never-ending responsibility. There is no gas utility operation of greater importance than that which is conducted locally, regionally and nationally by safety representatives of our utility companies. Though his own company had reduced its accident frequency rate from 30.9 in 1949, to 3.0 in 1953, they will keep at the task of improving that fine record, he said.

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Noise Problem

Problems resulting from industrial noise and from fire hazards were other major topics. Deafness, physical accidents and other losses due to noise were discussed by Martin Hirschon, president, Industrial Acoustics Company. Fire protection for utilities installing LP-Gas plants was demonstrated by lecture and slides by Frank J. Heller, Phillips Petroleum Company. Training of employees to fight fires was demonstrated in a film presented by T. R. Kelsh, Consolidated Edison Company of New York. Lloyd McLaughlin, of the same company, offered a film showing how his company worked with the New York Fire Department in public utility fire hazards.

Aluminum Wire Report

A NEW BULLETIN entitled "Aluminum Building Wires and Connectors," has been released by Underwriters' Laboratories, Inc. Designated Bulletin of Research No. 48, it reports an investigation to obtain information on building wires employing aluminum instead of copper as the electrical conductor, and on solders and pressure wire connectors when used for making the joints in such conductors.

Among the phases of the problem covered are installation in conduit, breaking load, flexibility, soldering, joint compounds, corrosion, heating, short circuits, assembly, secureness, pullout, preparation of joints, and interstrand resistance.

"What's the Law?"

Edited by
HENRY M. GROSMAN
Counsellor at Law, Newark, N. J.

Master Superior Court, New Jersey
Member
American Bar Ass'n, New Jersey Bar Ass'n,
National Federation Insurance Counsel
Past Commander, American Legion, Post 10,
Newark, N. J.

• • •

Grease Spot Slip

WHILE IN THE employ of a motor car company, a factory worker was pulling backwards a car which was hoisted on a jack. As he was walking backwards, he stepped on a greasy spot and fell to the concrete floor on his back.

As a result of the fall, he sustained a rupture of an intervertebral disc resulting in permanent disability. At the trial, it was revealed that the factory worker while in the Armed forces of the United States during World War II had sustained an accidental injury to his hip and back. For this injury he was receiving a 10% permanent disability benefit from the Government.

The court held, however, after hearing expert medical testimony that the history of the war injury would have been of no material aid to the doctors in estimating the present disability from the factory injury and awarded him compensation. The Award was sustained on appeal to a higher court.

BILL PUGH MOTOR CO. vs. CLARK, Oklahoma Supreme Court, No. 35,483. July 7, 1953.

Circumstantial Evidence

The deceased was employed by a packing company as a hog driver. One morning, the employee was found, dead or dying, on the floor of a small toilet on the premises of the employer.

His back was against an electric heater from which a shock could be received if both ends of the terminal were touched. At the autopsy, no evidence of disease was found. The only marks on the body were two large burns on the middle of the back.

His widow filed for compensation for the death of her husband while in the course of his employment. An award was made but on appeal was reversed. In the Supreme Court of that state, it was held that the death need not be proven by direct evidence, but may be established by circumstantial evidence leading to a fair, logical and reasonable inference.

The judgment was reversed and the award was confirmed.

HUNTER PACKING COMPANY vs. INDUSTRIAL COMMISSION, Illinois Supreme Court, No. 32753. September 24, 1953.

Assault and Battery

A bartender was allegedly struck across the face with a glass by an unknown customer who refused to leave the tavern. The bartender said he was struck as he emerged from a telephone booth after calling the police.

At the trial, it was brought out that the almost empty cash register indicated the bartender had attempted to close the bar, and that the presence of blood in front of the telephone booth and also a telephone call to the police confirmed the employee's testimony as to the occurrence of the altercation.

Although there were no witnesses and there was testimony that the bartender was in a belligerent mood prior to closing, the court felt that there was enough evidence to support the making of an award.

KELLY vs. DEMPSEY, New Jersey Superior Court, No. A-15. September 28, 1953.

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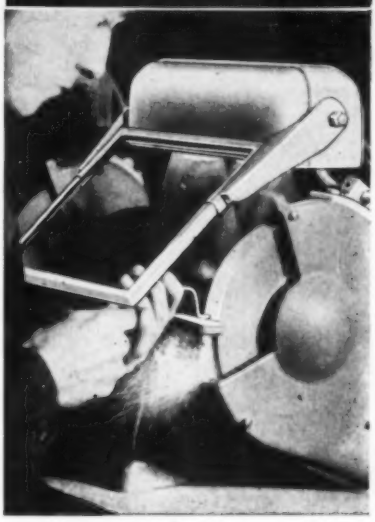

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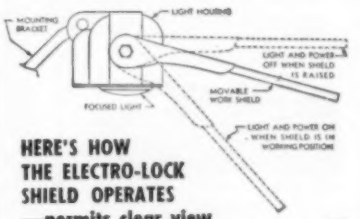
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What's the Law (Cont'd)

Broken Gasoline Hose

A service station attendant lost the sight of his left eye when filling an automobile tank. The rubber and cord hose broke and the escaping gasoline struck him in the face and eyes.

The reviewing court held that he was properly awarded compensation for 100 percent permanent disability of one eye since there was substantial proof and medical testimony to support the finding that the impact of a liquid pressure of from 20 to 30 pounds would be sufficient to produce the corneal abrasion, ruptured choroid and hemorrhage of the retina.

LECAS vs. SCHRAMM'S ESSO STATION, New York Supreme Court, Appellate Division, Third Judicial Department, No. 352–20. December 8, 1953.

Pre-Existing Rheumatic Heart Condition

A welder employed by a ship construction company fell over a cable and sustained a fractured rib. After treatment by a company doctor, the employee was declared fit for work a month after the accident.

The employee consulted his own physician subsequently and was given digitalis for an improper functioning heart. A claim by the employee under the Harbor Worker's Act was denied.

Subsequently, the employee died of congestive heart failure. A claim filed by the widow for death benefits was denied on the ground that her husband had a pre-existing heart condition which culminated in the congestive heart failure and that the injury neither aggravated nor caused the death.

When the employee began working for the company several months before the accident, he was examined by the company doctor and found fit for work as a welder, which required the lifting of heavy materials. At the time of the accident, another company doctor found that the employee had a heart murmur but that he was considered fit to return to work.

The employee's attending phy-

sician found, several months after the accident, that the employee's heart was degenerating.

The Deputy Commissioner held that the death of the employee was inevitable because of his pre-existing condition, rheumatic heart disease. No award was made. On appeal to a higher court, a motion was granted for a re-hearing.

GOODING vs. WILLARD, United States District Court, Eastern District of New York, No. 12734. March 31, 1953.

School for Ordnance Safety

A SAFETY DIRECTORS' Seminar marked the reopening, after a summer recess, of the School for Ordnance Technical Safety held at the Ordnance Field Safety Office, Charlestown, Indiana. According to Colonel A. W. Hamilton, Commanding Officer, it is felt that through bringing together the Safety Directors and their top assistants, an interchange of ideas, methods, and techniques, plus open discussion of their problems, will result in a still further reduction of the accident frequency rates in the Ordnance Corps.

Representatives of establishments with similar missions, operations, and problems, in groups of 18 to 25, meet for one week around the conference table. A total of ten Seminar groups have been scheduled for 218 persons representing 83 Ordnance Corps establishments, 14 Ordnance Districts, the Ordnance Tank-Automotive Command, the Ordnance Ammunition Command, and the Office, Chief of Ordnance.

Mr. Eliot V. Parker, U. S. Army Safety Director, visited the Seminar and participated in a panel discussion of special problems. Mr. Parker expressed considerable interest in the Safety Directors' Seminar as did the first two groups, which were enthusiastic in their participation and stated that they found the week crowded with ideas, methods, and techniques—so valuable in the constant battle to eliminate injury causes and to prevent accidents.

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Fire Hazards of Metalworking Plants

IN RECENT YEARS the metalworking industries have been beset by fire. Since 1942, large-loss fires in both heavy and light metalworking plants have increased 17 times. The increase is due in part to higher concentration of values in buildings, equipment and products exposed to fires and to hazardous new auxiliary processes and mixed occupancies.

These facts are brought out in a 57-page survey on fire hazards and safeguards for metalworking industries issued by the National Board of Fire Underwriters.

The survey shows that several new factors have entered the fire safety picture in recent years, but what is more important, is the ***presence of old fire causes in a more pronounced form.***

Excessively large, unprotected areas are used in a considerable portion of metalworking production. A good number of metalworking plants are utilizing woodwork and plastic materials in their fabrication processes, and are thus creating other industries within their own industry. Flammable liquid fires continue to predominate in this industry as more of these fluids are being used than ever before.

Automatic Sprinklers

Automatic sprinklers are not too common in many phases of this industry, for example: 26 out of 27 large-loss metalworking fires which occurred in 1951 were in unsprinklered plants. Insufficient fire extinguishing facilities due to lack of water supplies and ineffective fire-fighting units in some of the smaller communities have been responsible for the uncontrolled spread of fire. Fires have also gained considerable headway because of delayed detection and neglect in promptly calling the fire department. Maintenance fires caused by carelessly used welding torches or involving sawdust used for the removal of oil from operating floor areas in machine shops continue to prevail in the industry. Metal dust explosions have caused some of the most severe losses of life. In recent years hydraulic fluid fires, molten salt baths, and quench tank fires as well as electroplating and electropolishing have presented troublesome control problems.

Newer processes and operational techniques are rapidly entering the already complex production in these diversified industries, and are requiring more careful analysis of the associated fire hazards.

Inspections

Metalworking plants, in general, require well organized programs of inspection, maintenance, housekeeping, and waste disposal to achieve satisfactory operating efficiency and safety, the National Board survey said. In order to prevent fires, it is necessary to recognize, in advance, the inherent hazards and determine the possible contributory causes in any manufacturing process. A good inspection program will often reveal such hazardous conditions in time so that they can be promptly corrected by proper fire preventive and protective measures.

Typical Program

A typical plant inspection program should cover the following items: (a) general housekeeping, (b) materials handling and storage, (c) plant layout, (d) heating equipment, (e) dusts, fumes, gases, and vapor removal, (f) machine and safety controls, (g) general maintenance, (h) electrical equipment and lighting, (i) process equipment, (j) hazardous chemicals, (k) lubrication and cleaning methods, (l) access to overhead equipment, (m) adequacy of exits, (n) fire alarm system, (o) fire protection equipment.

Practically everything in a plant should be inspected at frequent intervals. It will often be discovered that improvements achieved by safety inspections will serve to aid

August Fire Losses

ESTIMATED FIRE LOSSES in the United States during August amounted to $78,163,000, reports the National Board of Fire Underwriters. According to Lewis A. Vincent, NBFU's general manager, this loss represents a decrease of 27.4 per cent from losses reported for August, 1953, which included the General Motors Livonia fire, and an increase of 12.4 per cent over losses for July, 1954.

Losses for the first eight months of 1954 now total $603,685,000 a decrease of 1.8 per cent from the first eight months of 1953. These estimated insured losses include an allowance for uninsured and unreported losses.

production by the safer and better utilization of equipment.

All inspection should include records and be followed by systematically applied corrective actions. This requires the submission of reports to department heads who will direct attention to hazardous conditions and unsafe practices, and thereby maintain interest until the problem is properly handled. Responsibility for correcting unsafe conditions should be fixed. All fires and explosions in plants should also be thoroughly investigated to determine the causative factors and the necessary proper preventive action to be taken.

Maintenance

Maintenance is closely integrated with plant inspection, the National Board pointed out. A well-developed maintenance program for the plant buildings, machinery, process equipment, portable tools and all safety and fire prevention equipment is essential for satisfactory production and safety. Equipment that is subjected to a program of preventive maintenance will produce more efficiently, last longer, and operate with more reliability.

Lubrication, cleaning, and repair of machinery are important maintenance jobs in metalworking plants. Many of the larger plants have separate divisions to carry on these jobs. The maintenance men should work closely with production personnel and clear all operations through department supervisors. Maintenance work performed on processing equipment can itself introduce fire hazards. Many fires have been started because maintenance personnel, particularly workers for outside contractors, inadvertently introduced a fire hazard into a hazardous operating area. A supervised permit system has been used successfully by many industrial plants for all "hot work" and extra-hazardous operations.

Worn equipment should be replaced in accordance with fixed schedules based on experience, and temporary makeshift repairs should be avoided. Records should be kept on all equipment failures in order to determine critical points of wear and to insure frequent inspections. All safety equipment including ventilating ducts, safety controls on processes, fire alarms, and fire extinguishers should be included in this maintenance program.

Housekeeping

Good housekeeping in metalworking plants is synonymous with organization and orderliness, and an important element of fire prevention. A large proportion of the fires in plants are caused by laxity in the handling of rubbish and waste materials. Ventilation equipment and dust collectors must be frequently serviced to prevent the accumulation of dangerous products. Some building interiors become coated with oily deposits, grease and dirt accumulations after many years of operation and thereby expose the plant to rapidly spreading fires, particularly where automatic sprinkler protection is not provided. Hoods and duct systems exhausting oil-laden vapors should be sprinkler protected. Congested aisles and poor routing of production materials may lead to dangerous accumulations of combustibles, and will hinder control and extinguishment of fire. Drains should be provided for liquid spills and accidental leakage which should be diverted to avoid their discharge into public sewer systems. Similarly, flammable washings and degreasing solvents should never be dumped into sewers.

Other hazardous process wastes must be continuously removed. Receptacles for waste and metal scrap are a great aid to safe disposal. Combustible floor sweepings and sawdust used to remove oil waste from floor areas have frequently been the cause of serious plant fires. Spray booths and dip tanks require frequent cleaning to prevent the accumulation of highly combustible paints and lacquers. Metal dusts should not be permitted to accumulate in any part of the plant area as they have caused serious explosions.

Metal scrap is one of the important by-products of the metalworking industry. This waste material has considerable value as it can be salvaged for remelting and further use. Large scrap sections such as sheet metal and extrusion waste are often placed outdoors for temporary storage. Shavings and cuttings mixed with oils should be separated into the various metals and alloys and they should be kept in covered metal containers. These turnings should be kept in a dry, cool place during storage as they may be subject to spontaneous heating, resulting in fire.

A serious fire occurred several years ago when 1,300 tons of iron and steel turnings, saturated with cutting oils, were ignited. The fire burned for about two weeks before it could be extinguished. It was finally brought under control by spreading the turnings over a large area and utilizing carbon dioxide and water spray to extinguish it. The storage of large quantities of turnings in small, thin piles permits the dissipation of heat more readily than large pile storage.

Neglect of proper disposal of combustible rubbish and trash, such as wiping rags, oily clothing, paint spray deposits, and other unwanted residues, including packing wastes, can present serious fire problems. Good housekeeping should include safe disposal of such hazardous materials by burial or controlled burning in suitable incinerators or at safe distances from buildings. Light wastes in volume are frequently burned as boiler fuel. Other wastes may require outdoor burning and should be under fire department supervision. In some areas, scavenger concerns make a specialty of collecting waste solvents to refine them for further use. Where appreciable quantities of combustibles are encountered, special industrial type incinerators designed to insure complete burning and prevent flying brands, should be constructed. Dry weeds and grass around the yard and adjoining areas also present a definite exposure hazard, since many fires have been transmitted to a factory building by fires outside the premises.

AN ANSWER TO MAGNESIUM FIRES

MANY MUNICIPAL fire departments are unequipped to extinguish fires in burning metals, but not the Philadelphia fire department.

At the direction of Chief George Hink, the city recently installed on one of its fire trucks 8 dry powder extinguishers capable of expelling 240 pounds of smothering powder on burning metals. Another truck carries 560 pounds of the special powder, and Chief Hink says that soon all engine companies, in whose districts there are industrial plants where the possibility of metal fires exists, will be similarly equipped.

Except for their vivid yellow color, these particular 30-pound metal fire hand extinguishers are similar in appearance to certain dry chemical extinguishers.

The metal fire extinguisher, however, differs somewhat in nozzle design to produce a stream of shorter range and lower velocity than the discharge from the dry chemical unit. The low velocity of the stream is necessary to blanket the fire effectively and avoid agitating the burning metal.

Before adopting this equipment, the Philadelphia fire department gave it extensive tests on both burning magnesium and sodium. In one test, magnesium turnings, such as would be found in a shop machining magnesium castings, were piled on a steel plate. The pile was 18 inches in diameter, 12 inches high, and contained 11 and a half pounds of magnesium. The flame of an acetylene torch was applied to the pile for 3 minutes, after which 90 percent of the exposed area was burning.

The fire was then attacked with the special powder extinguisher. In 10 seconds the fire intensity was greatly reduced. In 92 seconds, the pile was completely covered with the dry powder, and in 2 minutes, 5 seconds, the fire was extinguished.

RIGHT—Philadelphia fireman demonstrates wrong way to handle metal fire—with water—which has explosive spreading effect.

BELOW—Fireman is instructed in use of extinguisher containing powder which smothers burning magnesium in short order.

Pictures by courtesy of Ansul Chemical Co.

FIRE PROTECTION SERIES
other articles September & October

By ARTHUR W. SULLIVAN
Executive Representative
American District Telegraph Company
New York, N. Y.

MODERN DETECTION

THE PRIMARY interest of safety engineers is saving lives. It is also the main objective of the fire prevention engineer. Every measure for the prevention of fire reduces the probability of loss of life or personal injury by fire; and every measure for prompt detection, control or extinguishment of fire also contributes to safety.

During 1953, according to NFPA estimates, fire caused 12,360 deaths in the United States and Canada. Sixty-four employees were killed in manufacturing plants alone. In the Haber Corporation fire at Chicago on April 16, thirty-five persons died and 38 were injured. An explosion and fire in a plant at Tonawanda, N. Y., on September 23, took 11 lives. At Largo, Florida, on March 29, thirty-two patients in a highly combustible nursing home lost their lives. At Aiken, S. C., 10 persons were killed in a gas explosion and fire. Four guests were trapped and killed and 14 were injured in a hotel fire at Rosendale Township, N. Y.

These fire tragedies emphasize the need for adequate fire prevention and protection, especially automatic detection, alarm and extinguishment of fires.

Prompt Detection Imperative

An analysis of large-loss fires of 1953 puts strong emphasis on the importance of prompt detection and reporting of fires. There were 293 large-loss fires, each representing a loss of a quarter-million dollars or more. The record shows that 41 percent were discovered by outsiders. This is consistent with the 42 percent reported in the summary of large-loss fires for 1952.

Records covering the 1953 fires reveal that watchmen were the first to detect 7 percent of the serious fires, but in 16 instances they failed to detect the fires promptly. Occupants were the first to discover only 40 percent of the fires, which shows that even when a building is occupied, the occupants cannot be relied upon to detect fire promptly and summon fire-fighting forces without delay. In 39 cases, notification was delayed following detection of the fire. Occupants fought fires unsuccessfully in 13 instances before calling for help.

One of the largest losses of the year, amounting to $1,165,000, was caused by the destruction of 3 warehouses in Oakland, California. There were no automatic sprinklers or any means of fire detection, other than a "so-called" watchman who slept in one of the buildings in return for his services. Regular watchman patrols were not required. All of the 4 concerns occupying the premises suffered heavily.

Of interest in this case were the "intangible" or indirect losses, which were made a subject for special study. One of the tenant companies interviewed revealed that all of its records had been destroyed; some of its most important contracts had been cancelled; several new accounts had been turned down, and great expense had been incurred in getting established in new quarters. In addition, the firm was obliged to pay an increase of 30 percent in rent for a building at a less convenient location.

Experience has proved that even small fires can result in serious intangible losses. For example, there are numerous cases on record in which the destruction of special machinery that could not be quickly replaced caused cancellation of contracts, lost customers and other damaging situations. In a New Jersey plant which manufactures floor covering, the total destruction of two large, specially built machines caused an indirect loss of more than $500,000. At Springfield, Mass., 32 drop forge hammers were damaged by fire and water, causing loss of earnings for 130 days. In a Michigan refrigerator factory, 2 unusual woodworking machines were wrecked by fire. Expense of $200,000 was incurred before they could be replaced. In almost every fire of any consequence losses of this character can be expected.

It's the large-loss fires, however, which have the most far-reaching after effects, because usually the damage is extensive. The National Fire Protection Association reports that the 293 large-loss fires in the United States and Canada in 1953 caused 336 deaths and produced an aggregate loss of $274,374,500. The total fire waste in the two countries was estimated at $1,160,000,000. Thus, about 1-hundredth of 1 percent of the fires caused 24 percent of the total fire waste. Over the past 5 years the record is not much better. During this period there were 1,306 large-loss fires, which represented less than 1-hundredth of 1 percent of the total number of fires, yet caused 18 percent of the total fire losses.

From these figures, it is apparent that a reduction in the nation's annual fire losses depends largely upon the success of our efforts to prevent large-loss fires. This involves many factors, such as, improvements in construction, elimination of hazardous processes, installation of automatic sprinklers, education and training of employees in fire prevention and fire fighting, and, especially, installation of automatic detection and reporting of fires.

Cut Down Discovery Delay

As I have already pointed out, the majority of large-loss fires involve delay in discovery, delay in summoning fire-fighting forces, or both. It seems, therefore, that more extensive use of automatic fire detection and alarm systems is absolutely necessary. Such systems are effective in minimizing losses in hundreds of fires each year which never make newspaper headlines. For that rea-

son, some of us may not realize what a remarkable job automatic detection systems are doing; but without them, the number of large-loss fires undoubtedly would be staggering.

There is no single automatic fire detection and alarm system that is adaptable to all properties; but one of the most effective is a central station-supervised automatic sprinkler system. Automatic sprinkler systems, according to the NFPA, have a long-time record of 96.1 percent efficiency in extinguishing fires or holding them in check until arrival of fire-fighting forces. When properly installed, supervised and maintained, automatic sprinklers undoubtedly provide the highest degree of protection against fire. Unsatisfactory sprinkler performance usually is caused by human failure. Closed shut-off valves, low water in gravity and pressure tanks, high or low air in dry pipes and pressure tanks, low temperature in gravity tanks and other conditions interfering with the water supply and its distribution can usually be laid to human error.

The most frequent cause of unsatisfactory sprinkler performance, as revealed by NFPA sprinkler tables, is closed sprinkler control valves. These account for more than one-third of all instances reported. Valves frequently are closed to permit repairs or alterations and then are forgotten. One of the largest cotton mill fires on record got its start because a sprinkler valve had not been opened again after being closed to permit minor repairs. Often valves are closed to prevent freezing or water damage. Occasionally a valve is closed to abet arson.

A common occurrence is premature closing of sprinkler valves by well-meaning persons who, thinking the fire has been extinguished, take it upon themselves to shut off the flow of water. In Norwalk, Connecticut, a watchman smelled smoke and heard the sprinkler alarm bell ringing. Unable to locate the fire, he closed a section valve controlling the sprinklers. Later, flames broke out of a wall opening and spread to the roof. The fire department, belatedly summoned, found the flames far beyond its control. The building was destroyed with an estimated loss of $700,000.

Preventing Human Errors

Failures of this type can be most effectively prevented by central station supervision. Under central station supervision the sprinkler system is equipped to overcome the hazards of belated discovery and delayed alarm by means of devices which automatically summon the fire department or other fire-fighting forces whenever a sprinkler head opens. Other devices automatically cause a signal to be transmitted to the central station to warn of abnormal conditions, such as closed shut-off valves, high or low air pressure in dry pipes and pressure tanks, low water in gravity and pressure tanks and failure of power supplies to fire pumps. Upon receipt of these signals the central station immediately investigates to determine the cause and begin corrective action.

Year after year, the records are replete with instances where waterflow alarms from central station-supervised sprinkler systems have summoned the fire department in time to forestall the spread of fire and to prevent heavy water damage. One recent case involved a factory in a New England town, where fire broke out at an early hour in an unsprinklered warehouse adjoining the main plant, which was sprinklered. The unsupervised watchman, who was in the boiler room of the main building, did not see the flames as they swept through the warehouse, threatening the main plant when flames crossed a wooden bridge between the two buildings.

At that point, the heat of the fire radiating through the windows of the main plant fused several sprinkler heads and caused an automatic waterflow alarm signal at the central station. Operators quickly notified

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the fire department, and the apparatus arrived in time to prevent the flames from seriously involving the main building. The warehouse, which was without any type of automatic protection, was completely destroyed, but the main plant was virtually undamaged, thanks to an efficient fire department backed up by automatic sprinklers and central station sprinkler supervisory service.

Protecting Unsprinklered Buildings

In premises not protected by sprinkler systems, the most effective safeguard is a properly installed, maintained, and constantly supervised automatic fire detection and alarm system, preferably of the rate-of-rise type. Such systems operate upon the rapid rise in temperature which takes place upon the outbreak of fire. When operation is through a supervising central station, the fire department receives prompt, accurate and automatic notification. The rate-of-rise system is self-restoring. Since none of its elements has to be replaced, it is automatically back in service after an alarm. It can be effectively tested without destroying or distorting any part of the system.

An outstanding example of the efficiency of this type of system is the record of one central station automatic fire detection and alarm service in protecting more than one hundred municipal and state hospitals and other institutional buildings in St. Louis. During the past 17 years, these systems have detected and reported a total of 66 outbreaks of fire. In every case, the alarm was given so quickly that the fire was extinguished with little difficulty, either by persons on the premises or by the municipal fire department. The total loss in all of these 66 fires was less than $4,500, an average of about $68 per fire.

"Fireproof" Buildings Not Immune

Even in buildings of so-called "fireproof" construction, there is need for automatic detection and reporting of fire. For example, consider the plant and warehouse of the Miami Herald. The buildings

are of steel and concrete construction; but, in spite of this, on October 1, 1949, the paper-storage building was swept by a fire which gave the local fire department one of the toughest struggles it had ever experienced.

The outbreak occurred in a trash bin and was first observed by a photo-engraver who saw the glare of flames under a door. He called other employees who tried to fight the fire with hand extinguishers ***which were the wrong kind*** and proved only partially effective. The flames burrowed into rolls of newsprint, producing a fire that was exceedingly difficult to extinguish. The fire department, finally notified by telephone, found upon arrival, that the flames had gained tremendous headway. When water was applied, the paper rolls swelled to half again their normal size, blocking windows and doors and forcing the fire fighters to operate through holes cut in the 15-inch concrete roof. Firemen fought the blaze throughout the night before it was completely extinguished. The loss was $725,000. When the building was reconstructed, the management contracted for installation of a control system supervised by the local central system.

$725,000 Difference

By contrast, consider a fire of similar origin which occurred in a protected building in Oklahoma City just one day before the Miami Herald fire. The outbreak was in the headquarters and warehouse building of a large laundry chain. As in Miami, the blaze started in a trash bin. The trash bin was surrounded by cartons filled with combustible vegetable shortening. About 10 feet away were drums of denatured alcohol, and on the floor above was the city's largest deposit of stored furs. The stage was set for a major disaster, but the instant the heat of the flames reached the ceiling, the control system operated. Three minutes later the fire apparatus arrived and firemen extinguished the blaze before it got be-

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yond the stage of scorching the sides of adjacent cartons.

Another rate-of-rise type of automatic fire alarm system is ideal for large buildings with open areas and high ceilings. The system operates chiefly by detecting radiant heat. Radiant heat is the kind you feel when you stand or sit in front of a fireplace. The air between you and the fireplace may be cool—but you are warm because you receive radiant-heat energy directly from the fire.

The radiant-heat detector responds on the rate-of-temperature-rise principle, transmitting an alarm instantly and automatically. One standard detector suspended from the ceiling will protect an undivided floor area for a radius of 105 feet. It operates primarily through its ability to "see" and concentrate the radiant heat energy received from the plume of hot gases and heated particles which develops as a fire progresses.

Automatic smoke detection systems are also used extensively, particularly in fur-storage vaults and other enclosed spaces where smoke ordinarily is not present. A smoldering fire can produce large volumes of smoke, without generating any appreciable amount of heat. Fires in fur-storage vaults usually are of this nature.

Smoke detection systems are also used to detect the passage of smoke through the ducts of air conditioning and warm-air heating systems. In this case, photoelectric smoke detectors are installed in ducts, filter chambers, intake openings and other parts of the system. Operation of the smoke detection system actuates contactor and alarm equipment which automatically shuts off air-circulation fans, closes duct-system dampers, notifies the engineer or other responsible person on the premises, and signals the central station.

In recent years, many industrial plants have found it possible to obtain better protection at lower cost through combinations of central station automatic fire protection and burglary protection services. This protection may also include central station supervision of heating systems and certain industrial processes, thereby providing complete automatic protection.

It is important to bear in mind that the reliability of automatic protection depends upon scientifically designed and well-constructed equipment, proper installation and, especially, the amount and character of supervision, testing and maintenance. When any one of these is lacking, the system may not perform efficiently in an emergency.

The nation's fire-loss record makes it startlingly evident that there is grave need for further safeguards against belated discovery of fire and delay in giving the alarm to the fire department. The solution, according to the best advice of fire protection engineers, is properly supervised and maintained fire detection, extinguishing and alarm equipment.

From an address delivered at the Greater New York Safety Convention.
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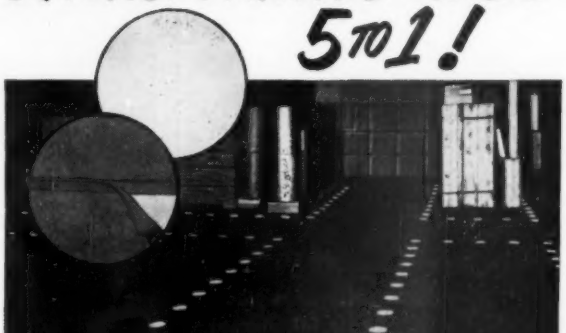

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Industrial Hygiene

Associate Editor
Jacob A. Goldberg, A.M., Ph.D.

Industrial Hygiene Meeting

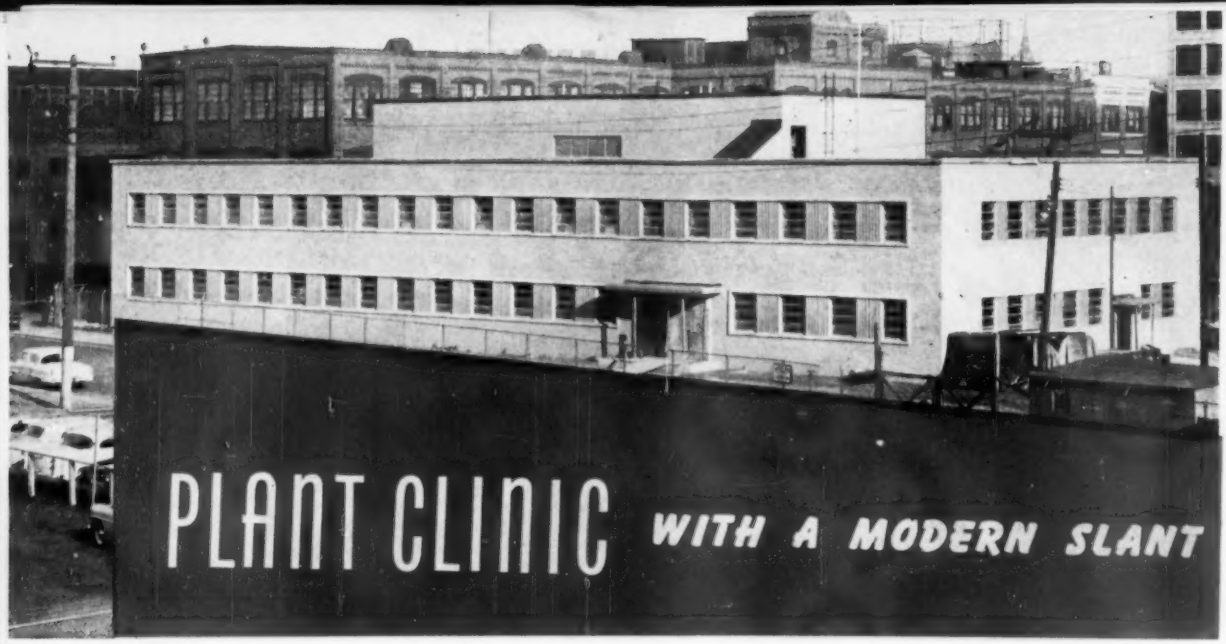
POTENTIAL INDUSTRIAL HEALTH hazards, as well as the major health problems facing manufacturers, will be discussed at the 19th Annual Meeting of Industrial Hygiene Foundation to be held at Mellon Institute, Pittsburgh, Pa. on November 17 and 18. Some 800 leaders in the industries and professions from all parts of the United States will participate in Medical, Engineering, Chemical-Toxicological, Legal and Joint Medical-Legal Conferences. They will represent the 360 member companies of the Foundation.

On the program are an outstanding group of speakers who will discuss topics relating to industrial health which are at present of great concern to management. Clifford F. Hood, President, United States Steel Corporation, will speak on management aspects of industrial health. Dr. Norbert J. Roberts, Medical Director of The Pennsylvania Railroad, will talk on horizons of industrial medical services. Dr. Roberts has facts, figures and suggested methods for setting up a system-wide maintenance and health program designed to benefit all employees.

With increasing responsibility for plant protection and post-attack defense measures falling on industry, the problem of civil defense for the industrial plant is a major one. Val Peterson, Administrator of Federal Civil Defense, and former Governor of the State of Nebraska, will present a practical approach to the problem. Dr. Donald A. Covalt, Associate Director of the Institute of Physical Medicine and Rehabilitation, New York University—Bellevue Medical Center, will discuss the field of rehabilitation. Dr. C. Stewart Nash, of the University of Rochester, a noted authority on otolaryngology, will give a medical evaluation of noise. Speaking on health insurance programs in industry will be Mr. A. L. Kirkpatrick, Manager, Insurance Department, Chamber of Commerce of the United States, who has had wide experience in the health insurance field. The significance of industrial wastes will be discussed by Dr. Richard D. Hoak, Mellon Institute, who is well known for his accomplishments in this field.

At the Medical Conference industrial physicians will be alerted to the industrial health problems of tomorrow. Included on the program are papers on hazards of radioactive materials, reevaluation of the physical examination, and the problem of overweight in industry. The Engineering Conference will bring to the attention of plant engineers new developments and ideas on engineering measures that may have effects on the working environment. Papers will be presented on physicochemical dust suppression in final products; the role of oxidation catalysts in air pollution control; outdoor ventilation for particular industries by open plant construction; recent developments in noise control; and specific instances of measures taken to control temperature, ventilation, and noise. A report on stack dust measurement research will also be given. The Chemical-Toxicological Conference will consist of discussions of the relationships among environmental health and several new processes and materials which have recently come into use in industry. Among the subjects to be considered fully are the vinyl plastics and resins bonded with glass fibers, vanadium and vanadium compounds, and some of the newer techniques of welding.

The legal aspects of industrial health problems will be taken up at the Legal Conference. Topics include a legislative review of workmen's compensation, a discussion of the medical and legal aspects of the causal relationship between occupational exposure and the incidence of compensable dermatitis, and papers on current developments in compensation for impairment of hearing and on the legal responsibility of employers for the prevention of occupational injuries.



PLANT CLINIC WITH A MODERN SLANT

SIXTY YEARS ago the assistant manager of the Schenectady Works of the General Electric Company circulated a letter to employees which announced that a medicine chest had been placed in his office "for the free use of employees in case of accident." That was the beginning of industrial medicine at the plant. In 1909, a first-aid room and a hospital corpsman were added; in 1921, the first plant physician was appointed. This year a new, million-dollar industrial clinic has been erected on the plant grounds.

X-ray room, shown here, is only one of many special treatment rooms in 2-story plant clinic, including dispensaries, physiotherapy, cardiograph, audiograph, fracture and operating rooms plus laboratories.

Here new woman employee gets audiograph test. Women have their own dispensary in the clinic.

Three members of clinic staff are shown performing some of their duties in the first-aid room. Five full-time doctors, 2 part-time doctors, and 31 corpsmen and nurses are among the 85 persons employed in the new clinic. Pre-employment exams are carried on in another section of the clinic, which also keeps employee medical records. Physical exams and emergency treatment are coordinated with work of clinical and research labs to give employees complete health program.

Ambulances are important part of clinic equipment, since patients after emergency operation or treatment are transferred to other hospitals. Clinic is not a bed hospital. Air conditioning, emergency power, central alarm and vacuum cleaning systems are also clinic features.

Industrial hygienist conducts experiment on chemical solvents, as lab coordinator looks on. Clinic experiments to find better working conditions in relation to air, temperature, humidity and occupational ailments for plant employees.

By MARK M. LUCKENS
Consultant in Industrial Hygiene & Toxicology, New York City

Dusts and Dust-Like Airborne Contaminants:

Part I

(First of a series of data sheets on airborne contaminants that are of industrial hygiene significance)

A. General:

Any kind of particulate matter, capable of being suspended in air, may be considered a "dust."

B. Definitions:

AEROSOL—A suspension of liquid or solid particles in a gaseous medium (e.g. air).

DUST—A dispersion of particulate matter resulting from the disintegration of a solid substance. Such operations as drilling, crushing and blasting generate dusts.

FUME—A condensate of particulate matter resulting from the application of heat to a solid substance.

MIST—A dispersion of particulate matter resulting from the atomization of a liquid.

FOG—A condensate of liquid matter on suitable nuclei.

SMOKE—Products of combustion possessing a definite degree of optical density.

C. Classification:

Particulate airborne contaminants may be classified according to:

1. Particle size
2. Origin
3. Chemical composition
4. Physiological action

D. Particle Size:

1. The particle sizes of airborne contaminants are usually stated in "microns." A MICRON (written μ) is one one-thousandth of a millimeter (0.001 mm.). Since a millimeter is equivalent to 0.039 inches, a micron is equal to 0.000039ths of an inch.

2. Generally speaking, only those airborne contaminants capable of being inhaled are of industrial hygiene significance. This statement should not be taken to exclude those airborne contaminants which may exercise their effect through the skin or through oral ingestion. However, the major industrial hazard presented by airborne contaminants is via inhalation. It is generally accepted that particles of 3 microns and less are the most deleterious. Particles greater than 10 microns in diameter are considered to have little hygienic significance in most cases.

3. DUSTS—Particles or aggregates of dust particles ranging from approximately 150 microns to 1 micron or less have been implicated in industrial disability. However, particles as large as 200 microns have been found in the lungs of men. It is quite possible that these and larger particles may have a deleterious effect, depending on the type of dust, as will be discussed in a later data sheet.

4. FUMES—Fume "particles" are generally 1 micron or less in diameter.

5. MISTS—The particle size of mists varies so greatly that it is difficult to establish a useful range.

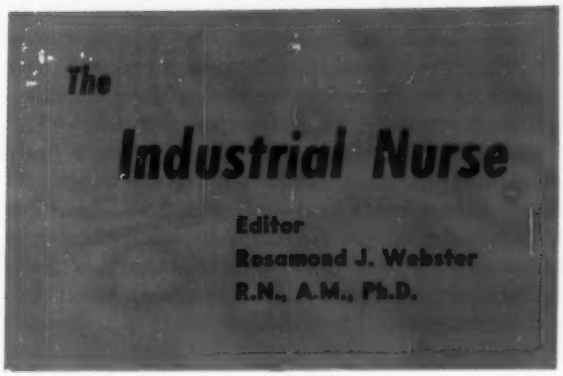
6. FOGS—The particle size of fog particles varies over a wide range.

7. SMOKES—Smoke particles are generally considered to be less than 0.3 microns in diameter.

(To be continued in subsequent issues.)

Correction

In the Data Sheet for Trichloroethylene in the October issue, the evaporation time was given as 3.8 (air = 1). The basis of comparison should have been with ether = 1, instead of air. The Maximum Allowable Concentration of 200 ppm should be listed as a separate heading instead of appearing under "Medicinal Uses."



Health Education

A PROGRAM TO EDUCATE employees on questions of health can bring many benefits at a minimum of cost. If such a program is to be effective, the industrial nurse must be convinced that in-plant health education is desirable, and, at the same time, she must be prepared to assume enthusiastic leadership in it.

The Surgeon General of the U. S. Public Health Service has written: "Modern industry is the logical partner of the health department in bringing the workers and their families all of the new and rapidly growing knowledge for preventing illness and improving health."

As an example of what can be done, the large Hanford Atomic Plant in Richland, Washington, has developed a successful health education program, which is fully described in Public Health Reports (September 1954). A planning and advisory group, known as the health activities committee, is the outstanding feature of the program. This committee serves plant personnel in the same fashion that a community health council serves the community. Because of its size and governmental nature, the Hanford program cannot be used as an exact model for many private industries, though effective guide lines are evident. Each department manager appoints a member to the health activities committee. This broadly representative committee consults on health problems in the plant and is responsible for getting ideas and information from the employees. The representatives are also responsible for disseminating health information within their departments. Serving as advisors are the manager of the health and safety section, the manager of the industrial medical subsection, and the chief of the public health unit. The health educator also serves as a member of the committee. There are monthly meetings to discuss health, absentee and other problems. Monthly bulletins are prepared and distributed, with topics suggested by the committee. Speakers from the medical staff or from the public health profession are invited periodically. Many other phases of health education are incorporated.

It is suggested that readers look up the article referred to. It will give them valuable information in planning for health education programs in their own plants.

Mental Testing

SOME YEARS AGO A TEAM composed of psychiatrists, psychologists, and psychiatric social workers studied a group of employees in a large mercantile establishment. This study came about in part because some business leaders recognized the need for accurate and objective tools to deal with the human factor. Since then there has been wide interest in psychological tests for the measurement of job fitness and vocational aptitudes of applicants.

The leading psychiatrist who directed the original mercantile study indicated that tests will tell certain things needed to know about an individual—his intellectual level, his knowledge of arithmetic, his motor dexterity, tendency to accuracy, speed of performance, etc. But, he concluded, one may have all of these qualities well developed and yet, because of personality problems, be a poor personal risk. Psychiatrists recognize that faulty ways of meeting situations, unhealthy mental preoccupation, inferiority feelings, anxiety states, fears and hatreds, irrational attitudes, pessimistic moods, prejudices, obsessions, etc. often go undetected in otherwise average normal people. Furthermore, these weaknesses in supposedly normal individuals are responsible for a large proportion of work failures, domestic difficulties, and serious social complications. In addition, some of these socially maladjusted individuals are to be found in virtually all large commercial and industrial establishments.

Some industrial nurses have expressed interest in the use of mental testing as an aid in the overall medical department work. Such selected testing, when carried out by well-qualified professional men and women, can be of help to the personnel department with a trained staff competent to interpret and implement the test findings. This is not a job for amateurs and those not specifically educated for it. Courses in psychological testing and in other areas of psychology can help the industrial nurse gain a proper understanding of this field of service.

Reference Procedures

THE INDUSTRIAL NURSE IS often in the position of having to refer workers or members of their families to physicians and surgeons, or to dentists, oculists, orthopedic appliance makers, hospitals and convalescent homes. In moderately large medical departments with full or even part-time medical directors, policies and standing orders may have been established. But, in many of the smaller plants, the part-time services of a physician, or one on call only, prevents the industrial nurse from availing herself of the help and guidance needed in such referral activities.

Basically, the primary responsibility is to learn whether the inquiring worker already utilizes the services of a

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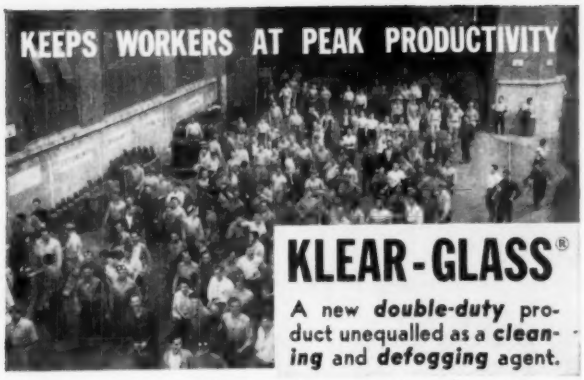

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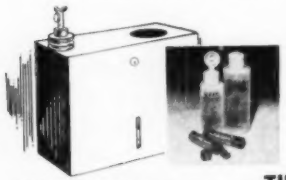

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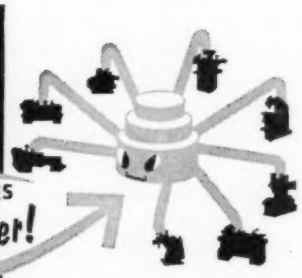

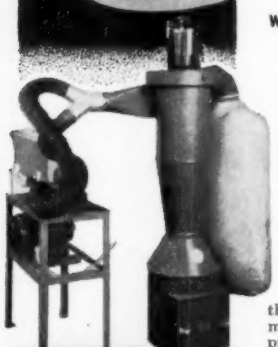

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physician or other professional person. There may be an inclination to be unduly or even unjustly critical of a local physician and to advise ailing workers to make a change in family doctors or others. Many physicians have been severely critical of such an attitude and its concomitant actions. The accepted procedure is to inquire as to whether a family physician or surgeon is already known to the worker. If such is the case, then he should be advised to return to his medical consultant. The latter already knows something about the patient's previous illnesses, and may be in a better position to render effective medical service than a physician who will see the patient for the first time.

It is also the accepted practice, in case the worker has no physician, to provide him with the names of three or more local physicians or medical specialists, and let the inquirer make his own choice. Or, to avoid any possible criticism, to refer him to the office of the local medical society for advice. In the case of hospitals, those on the approved list of the American College of Surgeons should be recommended in communities in which such hospitals are located.

Reactions to the Handicapped

MOST ABLE BODIED PEOPLE have a deep-rooted dislike for handicapped people which they find difficult if not impossible to overcome. This is one of a number of results of a study conducted by psychologists concerned with problems of rehabilitating the disabled.

The study, which has been under way for almost three years, was made among two groups of people: those who had worked as volunteers with the handicapped in places of rehabilitation for at least one year, and those whose experience with the handicapped was no more than average contact. The persons tested were shown a series of pictures depicting handicapped and able bodied people in typical real life situations—in the home, at places of business, in recreational poses and in on-the-street casual meetings. Those tested were asked to write down what they thought was happening in each picture, how the situation came about and what they thought would happen next. The results were then analyzed by 19 experts in the field of rehabilitation who, themselves, had been selected by test for their abilities to reach the same conclusions independently on identical material such as that gathered in the tests.

The reactions of the able bodied to the disabled ranged from such negative attitudes as absolute rejection, horror and hostility, to positive attitudes of admitting the disabled to social situations with the able bodied. Yet as a group, the overall reaction was far more negative than positive, with the greatest resentment directed toward facial disfigurement. The least negative attitudes were displayed toward arm and leg disabilities.

Results of another study showed that when persons suffering from aphasia, or loss of speech, receive treat-

ment in groups by psychologists they are helped to regain their lost speech, increase their vocabularies and their powers of conversation much more readily and rapidly. Speech ability, or the lack of it, is one basis on which people accept or reject each other. If a person lacks normal or adequate speech ability, the effects of such a condition run far deeper than the physical damage itself. By forming groups of persons suffering from speech difficulties and encouraging them to work out their problems in company with others, highly beneficial results in speech recovery and conversational development as well as vocabulary improvement have been obtained.

Fatal Accidents

STATISTICS PUBLISHED by a large insurance company indicate the widespread distribution of accidental deaths. They rank third, after cardiovascular diseases and cancer in every state except New Mexico, where accidents follow heart disease as the leading cause of death. There are, nevertheless, wide variations within the country in the accident death rate and also in the death rates from each of the principal types of accidents.

The overall death rate from accidental injury is highest in the Mountain area. In 1949–1950 the rate in that region was 81.5 per 100,000, or one third above the national average of 60.7. Nevada and Wyoming, with rates exceeding 100 per 100,000, made the poorest showing in the entire country; Montana's record was 96.7. The highest rates outside this region were recorded in South Dakota, Kansas, Washington, and Oregon, all of which border on the mountain states.

Of considerable interest is the fact that the highly industrialized area of the country, including the middle Atlantic and New England areas, had the lowest accident death rates. In both of these areas the rate was about one-sixth below the national average in 1949–1950. New Jersey had the lowest rate in the country, namely 42.6 per 100,000, with Connecticut a close second. The relatively favorable record for these states, as well as for the rest of the northeast, reflects generally their lower motor vehicle death rates. Falls are the most important cause of accidental death in this area.

As the available figures indicate, the accidental waste of human lives is huge. But it is significant that industrialized areas where large segments of the population are made safety conscious on the job have lower highway death rates. Perhaps there is a carry-over of safety awareness to the workers' off-the-job activities as well. This suggests that what we need is better safety education of all segments of our population throughout the country, and that the teaching of industrial safety, in which the industrial nurse plays a part, is an effective area for reaching large numbers of people.

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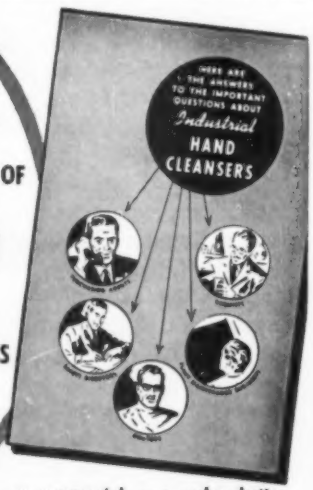

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Learning ..... the hard way

THE ETERNAL MYSTERY

IN THE SALVAGE department of a plant, aluminum shavings were being collected in a fiber-board drum. An aluminum-turnings container was brought into the department; and, thinking it contained only aluminum scrap, the metal sorter put the entire contents in the fiber-board drum. A few days later, when he was tamping the material down with a sledge hammer, he noticed an oily rag smoldering in the shavings. It started to blaze when he picked it up, so he dropped it, fetched a bucket of water and poured about a gallon onto the rag in the drum. The contents promptly exploded, showering his arms, hands and face. He suffered severe burns and was away from work for a month.

Investigation established that the drum contained a mixture of aluminum and magnesium-alloy turnings. However, investigation did not establish, as it generally does not do in cases like this, how the oily rag got into the fiber board drum. About the only thing one can say about this mysterious element is that it is usually the human element.

Great care should be exercised in machining and handling magnesium and magnesium alloy—the scrap must be free from moisture or contamination with other metals, dirt, floor-sweepings, etc. During the accumulation of magnesium scrap it should be stored in dry, tightly-covered metal containers. Shutting off air from burning magnesium will quickly and effectively smother the fire. Dry powdered graphite, dry asbestos, or dry powdered talc are also recommended for this purpose. Of course, water and most other types of standard fire extinguishers should not be used on a magnesium blaze, since they will only make the fire more violent.

THE SAFETY LESSON

A MAN WAS adding caustic to a solution in a tank, the contents of which rose considerably every time a shovelful was added. Before adding a final shovelful, he waited several minutes; but, when he did so the caustic erupted out of the tank over the lower part of his body. His call for help brought two men working near by, who stripped off his clothes and sprayed him with water. However, he received caustic burns on the abdomen, legs and feet.

When caustic is added to a cold solution, in order to prevent it from accumulating in one place at the bottom of the tank, the mixture must be constantly stirred. Only very small quantities must be used when they are added to a hot solution, and they must be sifted in very slowly with a long-handle shovel. Of course, protective equipment, face shield, long rubber aprons, sleeves and boots, should be worn by the worker. One can be reasonably certain that this employee knows these precautions for caustic handling now; too bad he had to learn his safety lesson the hard way.

THE INNOCENT BYSTANDER

A PRESS OPERATOR had left his machine and was walking along an aisle on his way to the laboratory. As he was turning a corner around a stack of metal boxes, he saw a fork-truck approaching at a moderate speed, loaded with sheet steel. The load of steel began to slide in the direction of the pedestrian. The truck driver shouted a warning, but the man was unable to get out of the way. His right foot was pinned against the metal boxes by the pieces of sliding steel. His injuries were so severe that his foot had to be amputated above the ankle.

The poor pedestrian was the victim of someone else's carelessness, because the sheet steel was not properly chained and banded together, or to the fork-truck. Besides that, the steel extended far beyond the width of the forks. Whether in storage or during movement, all sheet steel and similar dangerous loads should have adequate support.

KEEPING UP WITH . . .

Recent Developments in Industrial Tools

TOOL HANDLES

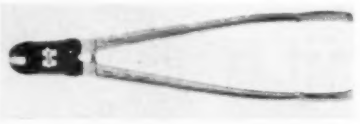
TOOL HANDLES, made only from second growth hickory, are offered by La Pierre-Sawyer Handle Co. Designed for long and hard service, the handles are said to have greater strength than other handles with less breakage and greater safety. Called Gold Seal Hickory Handles, the manufacturer states that they are of perfect shape and have a smooth wax finish to prevent splinters. The eye end of each handle is slit for a wedge, and metal and wood wedges are included with each handle.

For details, use Key # IT-1 on Inquiry Card on page 67.

ROD STRAIGHTENER

THIS NEW Rod Straightener, made by Manco Mfg. Co., is used to straighten the leading end of heavy coiled rod to facilitate its insertion into drawing dies or cold heading machines. The portable guillotine unit is placed on the rod end and through the application of 10 tons of hydraulic thrust will straighten an 8" section of heavy coiled rod. By successive application of the unit, 4 foot lengths can be straightened in approximately 15 seconds. Capacity ranges from 9/16" to 1-1/16" diameter rod. Operation of the device can be controlled by either a hand valve or by a foot valve if desired. The unit is powered by a 2 h.p. electric hydraulic pump. The weight of the straightener head is 18 lbs.

For details, use Key # IT-2 on Inquiry Card on page 67.

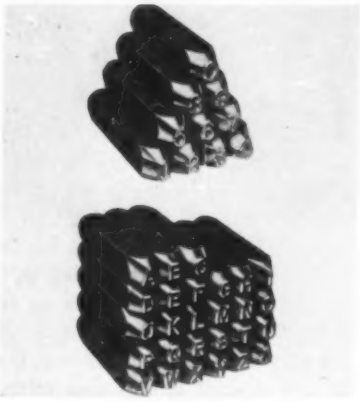


HEAVY-DUTY CUTTER

FOR CUTTING CONCRETE reinforcing rod, hard bolts, chain and high-strength steel strand and guy wire, Interstate Drop Forge Co., Milwaukee, announces its new line of Hardy heavy-duty cutters. These tools are said to be the result of research into the problems of cutting the new alloy chain, tough reinforcing rod, and high-carbon steel strand as used in extra-strong guy wire and cores of ACSR power lines.

"Geared-for-action" leverage has been greatly increased, and new alloys and heat treatment are employed to give long service life with no appreciable increase in weight. The handle design assures ease of operation and comfort in all positions. Capacities up to 9/16" diameter are available.

For details, use Key # IT-3 on Inquiry Card on page 67.

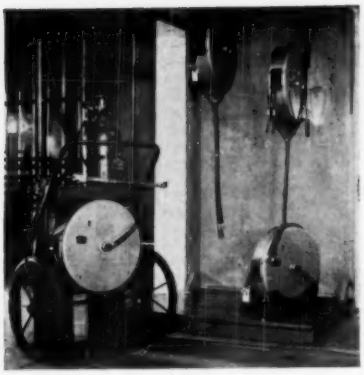


MARKING STAMPS

A NEW SERIES of flat-faced letter and figure stamps for marking forging dies has been introduced by M. E. Cunningham Company. Dies marked with Style FR stamps produce finished forgings with raised characters. Sides of the characters of these stamps are a rounded 45° bevel. This provides a clearance in the stamped die so that when a part is forged, metal does not lock in the markings. The flat-faced feature assures legibility in the marked forgings, while the round beveled sides reduce the number of rejects due to improper markings.

Made of safety steel, these stamps do not mushroom or spall in service. They are available in a full size range from 1/16" to ½". Also, other sizes can be made to order for certain operations. The stamps may be ordered in full sets of letters and figures or as individual sorts. Design includes a rounded head which provides a central striking point and also protects the user from foul hammer blows.

For details, use Key # IT-4 on Inquiry Card on page 67.



HOSE REEL

INDUSTRIAL USERS of oxygen and acetylene gases now have available an automatic retrieving hose reel which eliminates many of the hazards of handling and storing welding hose. The "Weldreel" requires only 21" x 27" for mounting in an overhead, wall or floor position and can be attached to a welding cart for portable use. The reel locks hose at any desired length and retracts hose quickly when not in use.

Constructed of steel and brass and using Teflon sealing rings on a rotating shaft, the unit permits leakproof operation at all welding and cutting pressures. Available complete with either 50 feet of 3/16" or 40 feet of ¼" twin hose, or without hose. Manufactured by United Specialty Corporation.

For details, use Key # IT-5 on Inquiry Card on page 67.

AIR-HYDRAULIC VISES

A LINE OF power operated vises under the trade mark WiltO-matic is announced by Wilton Tool Mfg. Co. The new vises use a conventional vise screw and handle for pre-setting the jaw opening to the size of the work piece. The power unit, which is attached to a conventional vise, has an adjustable power stroke from zero to ¾". Maximum jaw opening varies from 3" to 9" depending on size of vise. The power stroke is activated by either a foot or hand control.

Relatively low air pressure from plant outlets is used to actuate an air-hydraulic converter. This in turn gives the vise a powerful locking force at the touch of a finger. With a power stroke of controlled length and the ease of pre-setting the jaw opening, the vise is said to satisfy safety regulations. "Set-up" time re-

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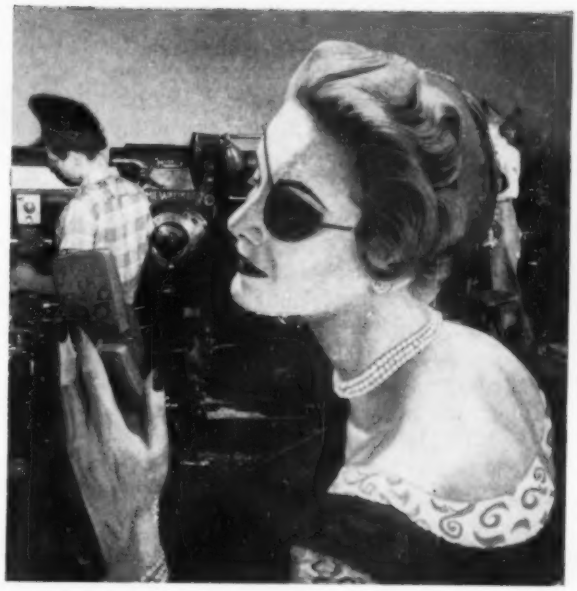

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(For details, use Key # Y-28 on card on page 67)

quired between jobs is negligible, and it is readily used as either a power operated or manually operated vise. Available in 2½" through 6" sizes.

For details, use Key # IT-6 on Inquiry Card on page 67.

SAND BLAST GUN

USED FOR FAST, efficient sand blast, air or liquid cleaning of small parts and surfaces, the Carco midget sand blast gun, offered by the Marin Co., has found many applications in industry. It operates on any standard air pressure system, at 75 to 140 lbs. pressure. Most efficient results are obtained at 100 lbs. pressure. For sand blasting: silica sand, carborundum, granite grit, glass beads, or any other 30 mesh or finer material can be used.

The gun comes in a complete kit which consists of one gun, three extra nozzles, extra steel jet, jet wrench, 3 foot rubber hose, and glass jar assembly. Applications include removing carbon; removing paint and rust; cleaning radiators; removing small areas of damaged porcelain on refrigerators, sinks, etc.; preparing wood for painting; cleaning spark plugs; art work on glass; and many other uses.

For details, use Key # IT-7 on Inquiry Card on page 67.

POWDER-ACTUATED STUD DRIVER

DESIGNED TO DRIVE heavy shank fasteners into structural steel plates up to an inch thick and into hardest concrete, Ramset, a division of Olin Industries, Inc., has produced a powder-actuated tool called the Super-Power Jobmaster. Pins and studs driven into one-inch structural steel are claimed to have a holding power up to 10,000 pounds, approximately 25 per cent greater than recorded for fasteners seated by any other heavy-duty tool.

The new tool weighs less than 8 pounds and is fifteen inches long. It is designed for either one-hand or two-hand operation and sets pins and studs ⅜ of an inch in thread or head diameter at an average rate of 1 or more a minute. It uses any of nineteen Ramset-designed fasteners, and has a choice of four powder loads to handle virtually any heavy-duty construction assignment.

The four new powder loads are of center-fire type. They feature an exclusive plastic wad which acts as a gas check, eliminating power-distribution leakage of gas down the

(Continued on next page)

barrel, and preventing spalling of concrete at the point where the pin or stud is driven. A new circle-set shield is another feature of the tool. It permits the setting of fasteners as close as one and one-quarter inches from the edge of the shield. The shield has quadrant markings for exact positioning and may be converted to half-shield position in an instant. The tool stands upright on this shield, ready to be picked up by the operator merely by reaching for the finger-grip handle. The tool requires no breech plug and is opened for loading or inspection with a quarter-turn of the upper-half of the assembly. Locked with a reverse quarter-turn, it has a positive safety, making discharge impossible until the tool is pressed firmly against the work surface in an almost exactly perpendicular position.

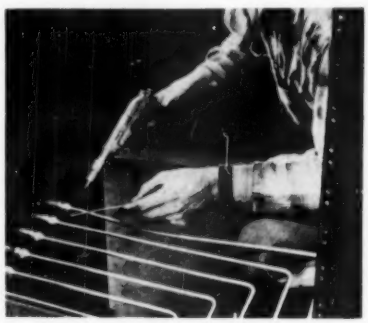
For details, use Key # IT-8 on Inquiry Card on page 67.

RATCHET ADAPTOR

FEATURING EXTRA strength and safety, a new heavy duty ¾" square drive ratchet adaptor has been produced by B. K. Sweeney Mfg. Co. Claimed to be the safest ¾" drive ratchet adaptor ever made, the Sweeney Model 67A converts any combination of work handle, extension, socket or torque wrench into a reversible, ratcheting action tool. It provides ratcheting speeds on many nuts where application of standard ratchet wrenches is impractical. Ratcheting action of the adaptor requires a handle movement of only 10° and permits efficient use in limited spaces.

Eliminating protruding levers and buttons, the tool employs a completely encircling reversing collar which minimizes the possibility of unintentional reversal. Directional markings are inscribed on the input face and reversing collar to note its driving action.

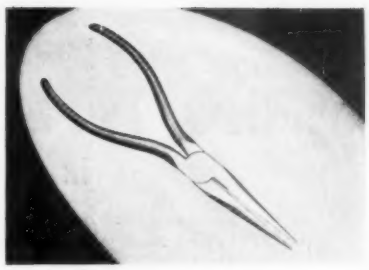
For details, use Key # IT-9 on Inquiry Card on page 67.



AUTOMATIC GAS TORCH

A PISTOL-SHAPED torch, called Torch-O-Matic for soldering, burning, sweating and other jobs, is designed for use with propane gas, according to the Velocity-Power Tool Company. A squeeze of the trigger produces a controlled flame—a fine, pin-point or a full, six-inch flame, as desired for any job—and the new torch is said to save time and gas because of its instant-on, instant-off features. Electricians, plumbers, roofers, farmers, hobbyists, dentists and other users can get much more time from a tank of propane gas because the flame snaps out on release of the trigger, it is pointed out. Absence of lingering flame on shut-off also promotes safety, avoiding accidental fires and burns. Pumping, priming, heating and waiting are eliminated through use of the new torch because ignition is instant on squeeze of the trigger. It connects directly to the propane tank, without need for intermediate valve apparatus.

For details, use Key # IT-10 on Inquiry Card on page 67.

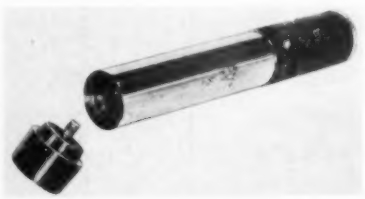


SAFETY PLIERS

LONG-NOSE pliers, redesigned with added features, have been developed by Ampco Metal, Inc. The pliers are made entirely of a special bronze alloy which offers many outstanding advantages towards greater safety and durability.

Their spark resistance, and resistance to many acids are beneficial features for the maintenance man or chemist. TV repairmen or electronic engineers will find their non-magnetic properties invaluable in their work, according to the manufacturer. In addition, these pliers will not rust and their 6 inch length makes them easy to store in any tool box.

For details, use Key # IT-11 on Inquiry Card on page 67.



DRIVE PUNCH

A COMPLETELY NEW tool, designed for driving press fits, bearings, bushings, and doing assembly work is announced by New Plastic Corp. Called Nupla drive punches, they are non-marring, soft-faced tools that permit striking hard hammering blows on assemblies and bearings with absolute safety. They act as positive protectors while still transmitting powerful blows.

Equipped with soft-faced tips that will not mushroom and lose effectiveness, they will not chip. They are said to take the place of makeshift punches or drifts which con-

tinually need refacing and replacing. The new tool comes with replaceable tips which can be inexpensively replaced after excessive wear. They are fastened in a chromed, lifetime (steel) tip-holder. Available individually or in sets, there are five sizes, ¾ inches to 1½ inches.

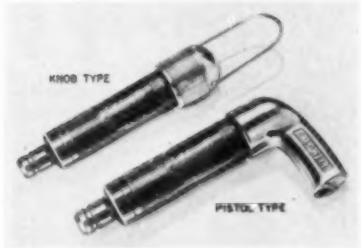
For details, use Key # IT-12 on Inquiry Card on page 67.

WELDER'S TOOL

ANNOUNCEMENT IS made by Atlas Welding Accessories Co., that their line of Dual-Tools, recently redesigned, is available with replaceable bits. The new frame construction is far more rigid, has the advantage of being easier to pick up and has better brush angle and easier brush replacement.

Added is the feature of replaceable bits, either cone or chisel. The chisel bit can be inserted straight or as a cross chisel. When a bit is worn out, it can be drifted out and replaced with a new bit of Solar chisel steel. The tool is available with either wood or metal handle.

For details, use Key # IT-13 on Inquiry Card on page 67.



PNEUMATIC HAMMERS

AN AIR TOOL for drilling, chipping, trimming, scaling, sealing and all-around general applications is offered by the Burgess Thomas Co.

This hammer, trade-named Caldwell, is small in size measuring 9¾" in overall length with a 1⅜" barrel diameter. For flexibility the hammer is offered in two handle styles, the pistol type and the knob type. The hammer is automatic in that it operates when pressed into contact with the work and stops when withdrawn. Its light weight, (approximately 5 pounds), combined with the automatic start-stop action and no recoil "kick" make for safe, easy handling. Tools are readily inserted, held firmly and removed easily by hand, from the push-pull quick change chuck of the hammer. It uses very little air and operates on pressures from 30 to 100 pounds in accordance with the requirements of the work. It is said to have many

(Continued on page 61)

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(For details, use Key # Y-31 on card, page 67)

inside the trade

Appointment of Guy J. Berghoff as assistant to the vice president in charge of Pittsburgh Plate Glass Company's merchandising division has been announced. In the newly created position, Mr. Berghoff will serve as assistant to vice president Donald C. Burnham.

Succeeding Mr. Berghoff as Director of Information Services is Michael J. Batenburg, formerly General Advertising Manager. As Director of Information Services, Mr. Batenburg will be in charge of the company's Public Relations, Publications and Advertising. Also announced were the appointments of Richard W. Dittmer as Manager of Public Relations and Norman L. Park as Manager of Publications.

Mr. Clarence H. Dougal, a veteran of 34 years of firefighting and a member of several firemen's associations, has joined the Mack Motor Truck Co. to represent the Fire Apparatus Division in its northern New Jersey territory.

The Pangborn Corporation, manufacturer of blast cleaning and dust control equipment, celebrated its 50th anniversary recently. Participating in the event was Thomas W. Pangborn, the firm's founder, who after 50 years as president still continues in active management.

The John B. Moore Corporation has moved to the Peerless Building, 384 Franklin Avenue, Nutley, New Jersey. The new offices will provide more than twice the space than their former quarters, with provisions being made for further expansion as the business needs may require.

Selection of Irving Q. Sarlin to fill a vacancy on the Board of Directors, is announced. Also, appointments of several technical service and sales representatives as follows: Charles C. Searles of Wilmette, Illinois, for Northern Illinois area; Charles H. Cadiz of Washington, D. C. for Delaware, Maryland, District of Columbia and Virginia area; William I. Lightfoot of Louisville, Kentucky, for Kentucky and Tennessee; and, Industrial Equipment Company, Kansas City, for the five state central west area.

William J. Freund has been appointed sales manager of the new Electri-Car Division, Victor Adding Machine Co. Mr. Freund will make his headquarters at Victor's main office in Chicago.

Federal Pacific Electric Company Newark, N. J., manufacturers of electrical distribution and control equipment, has acquired the Gardner Electric Manufacturing Company, San Francisco, transformer manufacturer, according to Thomas M. Cole, executive vice president.

John Schippers has been named manager of the Chicago branch office of The Colson Corporation, Elyria, Ohio, manufacturers of materials handling equipment.

Schippers formerly was Chicago branch manager for Service Caster & Truck Corporation, Albion, Michigan, assets of which recently were purchased by Colson. All branch offices of the two companies have been combined.

The Fyr-Fyter Company, Dayton, Ohio, manufacturers and distributors of fire protection equipment, have announced the purchase of the inventories, dies, tools, trade names, copyrights, etc., of the SAFA (Superior American Fire Alarm) Division of the Revere Corporation of America, Meriden, Connecticut. Facilities are being established in Wooster, Ohio, for the manufacture and distribution of the municipal fire alarm and central station equipment.

Charles C. Shackford has been named Product Engineer of the Electrical Wire Division of the John A. Roebling's Sons Corporation.

John F. Kidde, president of Walter Kidde & Co., Inc., has been elected to the Board of Trustees of the National Security Industrial Association for a 3-year term. The N.S.I.A. is an industrial association established to act as liaison between approximately 600 industrial companies and the Department of Defense.

TRANSPORTATION SAFETY

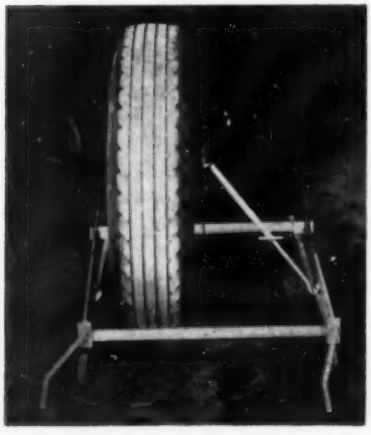
DOLLY FOR HEAVY WHEELS

SPEED AND SAFETY in removing and replacing single and dual wheels for heavy trucks and buses is claimed by Romay, Inc., for their Boyd Dual Wheel Dolly. The new device is said to permit one maintenance man to remove or replace the wheels since it lifts the wheel of the axle and places it securely on the dolly.

To operate, the back bar is removed and the dolly slid into place. The back bar is then replaced and cranked against tire to obtain lifting effect. The wheel is loosened and the inside tension bar on the dolly is tightened, automatically freeing the wheel and putting it in position on the dolly. To replace wheels, this procedure is reversed. This method is said to eliminate the danger—particularly in handling single wheels—of the wheel tipping over onto the maintenance man.

Another feature of the device is its ability to tilt outward or inward to start the wheel on or off by screwing one crank more than the other to conform with the axle slope.

For further details, use key number TS-8 on free inquiry card on page 67.



Training to check fellow employees, driver has skills checked by test device.

You Have to Train the Trainers First!

A DRIVER-TRAINER program to check the proficiency of 4,000 drivers who handle automotive equipment in and out of traffic is underway at the Consolidated Edison Company of New York.

Safety is the program's keynote. The primary purpose of the utility's program is to make each driver as expert and as safe a driver as possible. Obviously the company also gains from the maintenance point of view as the careful driver takes better care of his equipment.

All company drivers are trained to handle their equipment. They must pass fitness tests to qualify as operators of company vehicles. City and state requirements also have to be met. Their proficiency is now being checked again to make sure each driver still is as careful and competent as he was trained to be.

The driver-trainer system is being used to avoid disrupting work routines. The trainers are experienced drivers selected from different company departments. They are put through an intensive 5-day driver-trainer course planned and administered by the company's transportation department and safety bureau.

Trainers ride with fellow employees in their respective departments. They observe how each driver handles his equipment under actual working conditions. Any discernible faults can be corrected on the spot. Refresher training or physical check-ups are recommended if there is doubt of a man's ability to meet the high standards essential for safe driving in congested city streets.

The course for trainers features classroom sessions and field demonstrations. The curriculum includes a

study of drivers' characteristics; a review of state and city traffic regulations; and the essentials of "defensive driving"—how to guard against the inexpertness or carelessness of others.

Also covered are the basic mechanics of automotive equipment; psycho-physical driver testing methods; driving skill testing techniques; and how to handle problem personalities among students. Each trainer receives a comprehensive manual covering the complete course.

Driver-trainers are selected from the departments involved to put the program's implementation at the departmental level where observation of driving proficiency can be a continuous process. However, in the case of small company groups with too few drivers to warrant designation of a departmental driver-trainer, the transportation department provides the instructor.

In short, the new program puts good drivers, who have additional training and testing, in with regular drivers to see which ones are good drivers and bring the poorer ones up to snuff.

Picture by courtesy of Consolidated Edison Company of New York, Inc.

Application of Safety Programs

THE SUGGESTION THAT the techniques employed by industry to make its plants safe might also be used to cut down on traffic accidents and other mishaps was made by John S. Bugas, vice-president—industrial relations, Ford Motor Company, at the 28th annual meeting of the Detroit Industrial Safety Council. Mr. Bugas said that the "American businessman has made considerably more progress in the field of industrial safety than has been made in other areas of safety. It seems to me that many of the lessons we have learned in industrial safety can profitably be applied in other areas. The same weapons and techniques which have cut plant accidents so dramatically in the past 20 years might well be used against accidents in general."

Mr. Bugas listed several points which make up Ford's over-all safety program. They start with unqualified management support of and supervisory participation in all important safety activities, and include "selling" safety constantly to employees; designing and engineering safety into tools, equipment and plant layouts, and providing for adequate safety personnel, protective equipment, and thorough plant housekeeping, inspection and reporting procedures.

The progress made by Ford and industry generally through such safety programs suggests consideration of the following steps toward safety improvement in other areas: adoption by the states of uniform traffic regulations; standardization of states' accident-reporting procedures; tightening and standardization of regulations governing issuance of motor vehicle operators' permits, including provision for compulsory re-examination of permit holders at intervals of perhaps 5 or 10 years; expansion of driver-training programs; compulsory periodic inspection of motor vehicles.

Regarding present traffic laws, Mr. Bugas asserted that "often within a single state traffic rules and regulations and methods of enforcement overlap and even conflict with each other. The result is utter confusion. Until we have some semblance of uniformity, we will only be nibbling at the edges of the problem of safety on the road."

Referring to a Ford requirement that all employees engaged in operations which might endanger others must have special safety permits based on rigorous and regularly-repeated examinations, Mr. Bugas said: "These permits are analogous to the motor vehicle operator's permit issued by the states—but with an important difference. The crane operator, for example, must undergo periodic physical and technical tests in order to keep his permit.

"WOVEN-Gards"

BETTER HAND PROTECTION

AT AMAZING LOW COST

"Woven-Gards" are hand protectors, mitts, pads, sleeves and aprons made of a long wearing woven cotton safety material. Provide flexibility, comfort, resistance to abrasion and cutting. Highly oil absorbent. Excellent for handling oily, slippery sheets. Porous weave makes them the finest protector for handling lower temperature jobs. Excellent protection at lowest cost. We manufacture a complete line of industrial safety apparel. Write for free catalog with price list.

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To be sure of the Genuine — Steel-Grip INDUSTRIAL Safety Apparel — Demand this Trade Mark

(For details, use Key # Y-32 on card on page 67)

Experts Seek Tighter Traffic Laws

SEVENTY TRAFFIC experts met recently in Washington, D. C., for the purpose of making streets and highways safer through tighter traffic laws. The National Committee on Uniform Traffic Laws and Ordinances—the model-law drafting group of the White House Conference on Highway Safety—amended lighting, braking, maximum speed and driver licensing requirements in the Uniform Vehicle Code, the nationally accepted guide for motor vehicle legislation.

Sidney J. Williams, Assistant to the President of the National Safety Council and chairman of the group, in describing the aims of the meeting, stated: "The Uniform Vehicle Code can never remain static as long as the conditions sought to be controlled change frequently through ever-increasing motor vehicle use and traffic congestion. Our responsibility as a group is to keep the Code up to date. To this end, subcommittees composed of experts will recommend changes based on careful analysis of the problems assigned to them. The conditions causing the problems tend to defeat the greater safety we seek for all highway users. After full discussion, we will adopt such changes as we think will make the Code serve better the public interest."

The principal changes made by the Committee in the Uniform Vehicle Code were: (a) Five exclusive use categories were assigned to warning lights on motor vehicles; (b) Farm tractors, farm equipment and implements of husbandry operated on public highways at night must have specified lighting equipment in use; (c) An absolute maximum speed of 60 miles per hour, with 50 miles per hour at night for all vehicles, replaces prima facie limits. Lower limits are provided for urban and zoned areas; (d) An applicant for a driver's license in any State must certify that he does not hold a currently valid driver's license issued by another State; (e) Stopping distances in feet for motor vehicles upon application of the service (foot) brake were lowered for private passenger automobiles and raised for trucks and buses.

Concluding his remarks, Mr. Williams said "What we have done is to bring the Uniform Vehicle Code up to date in all important respects. We have recognized the trends in such matters as lighting equipment, brake performance and speed, and corrected an abuse of the public under the driver licensing law. These revisions together with others made earlier this year and also in 1952, will provide State legislators with a thoroughly sound and safe guide for motor vehicle legislation when they meet in 1955 to consider such matters. All of us who have participated in the Code's development will consider ourselves well repaid for the time and effort spent if it accomplishes our single objective of making the streets and highways throughout America safer for all users."

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(For details, use Key # Y-34 on card on page 67)

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(For details, use Key # Y-35 on card, page 67)

persistent

hoarseness

or cough

...is one of the seven commonest danger signals that *may* mean cancer...but should *always* mean a visit to your doctor.

The other six danger signals are —Any sore that does not heal ...A lump or thickening in the breast or elsewhere...Unusual bleeding or discharge...Any change in a wart or mole... Persistent indigestion or difficulty in swallowing...Any change in normal bowel habits.

For other facts about cancer that may some day save your life, phone the American Cancer Society office nearest you, or write to "Cancer"—in care of your local Post Office.

American Cancer Society

SAFETY ACHIEVEMENTS

THE FIRST INDUSTRIAL plant to receive the civilian defense plant protection award a second time in New York State is the Scintilla division of Bendix Aviation Corporation.

The award, a blue star and certificate, was given to the division for "continuance and improvement of its plant protection units." Modern counterpart of the World War II Army-Navy "E," the CD award flag signifies that a plant has taken full-scale precautions to protect its workers and property in the event of an enemy attack.

★ ★ ★

COMPLETION OF 2½ million man-hours of work without a single disabling injury was announced by Tide Water Associated Oil Company's refinery at Avon, California. The refinery, which employs 1,450 men and women, previously recorded two safety records each of more than one million consecutive man-hours work without a lost time injury. The present record which started November 1, 1953, and is still continuing, has reached a total of 318 days.

★ ★ ★

RECIPIENT OF THE National Safety Council's "Award of Safety" for its safety record during 1953, Caterpillar Tractor Co. is continuing to increase its efforts to promote safety consciousness among its employees. Latest of these efforts was a contest held in all of its plants in which employees' children under the age of 14 years were invited to write an essay entitled "What My Dad's (or Mother's) Safety Means to Me."

Results of the contest are already cropping up—the first 6 months of 1954 show a marked decrease in accidents, beating the record set in the same period of 1953 when the safety award was won.

★ ★ ★

FOR THE SECOND consecutive year, Trailmobile Inc., manufacturers of commercial truck-trailers, has been awarded a "Certificate of Achievement" by the National Safety Council, according to Malcolm McGowan, Trailmobile safety director. This award is given to industries that have made a very decided reduction in the frequency of lost time injuries suffered by their employees.

★ ★ ★

WORKERS AT THE General Electric Company Hanford Atomic Products Operation have just completed 8,750,000 man-hours without a lost-time injury, the finest safety record in the company's 75-year history.

The Hanford safety achievement was attributed by Louis E. Newman, G-E safety manager, to adherence to three basic policies: 1. Each employee is given individual job instructions on safety; 2. Safety rules, once made, are strictly enforced; 3. Each supervisor is held accountable for the safety of his workers.

Accident Prevention Course

AVAILABILITY OF A new Accident Prevention Course was announced by the American Gas Association during its 6th Annual Accident Prevention Committee Conference at Hartford, Conn.

Entitled "Accident Prevention Through Informed Supervision," the new course is designed to give gas industry foremen, supervisors and superintendents a thorough grounding in modern accident prevention techniques. The two-day seminar restricts straight lecturing to a minimum, leans heavily on visual aids to emphasize the following main themes: 1. Accidents Don't Happen—They are *Caused!* 2. Unsafe Conditions and Unsafe Methods are the Principal Causes of All Accidents. 3. It Pays—In Dollars and Cents—to Prevent Accidents. 4. The Cost of Accident Prevention is not Great—and Regardless of the Size of the Company, *It Can Be Done.* 5. Direct Costs of Accidents are Always Greater Than Prevention Costs, Indirect Costs Infinitely More So.

The course begins with a statistical survey of the gas industry's accident record and its position safety-wise in the nation's industrial community. This is followed by the two-day agenda: How To Set Up A Safety Program; How To Make A Safety Talk; Investigating and Analyzing Accidents; Planning and Conducting A Safe Operations Meeting; Methods Of Securing Favorable Worker Response; How To Maintain Interest In A Safety Program; Summary Of Entire Course; Presentation Of Regional (Local) Plans and Data; Question and Answer Period.

Following presentation of each main topic, the important points raised are elucidated further by group discussion and the showing of pertinent cartoon films, sound slides, charts and graphs.

Details of the gas industry course can be obtained from the American Gas Association, 420 Lexington Ave., New York 17, N. Y.

"Fire-Chief Finished"

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"If It's Made of Canvas, We Make It"

(For details, use Key # Y-36 on card on page 67)

Industrial Tools

(Continued from page 55)

uses in the sheet metal, electrical, plumbing, building maintenance, waterproofing, weatherproofing, caulking, foundry, machine shop, bookbinding, termite control and many other fields.

For details use Key # IT-14 on Inquiry Card on page 67.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, OF SAFETY MAINTENANCE AND PRODUCTION, published monthly at Rensselaer, N. Y., for October 1, 1954.

State of New York, County of New York, ss. Before me, a Notary Public in and for the State and County aforesaid, personally appeared Arthur Snyder, who, having been duly sworn according to law, deposes and says that he is the business manager of SAFETY MAINTENANCE AND PRODUCTION, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management and circulation of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor and business managers, respectively, are: Publisher, Alfred M. Best Co., Inc., Executive Offices, 75 Fulton St., New York, N. Y.; Editor-in-Chief, Alfred M. Best; Managing Editor, C. M. Kellogg; Business Manager, Arthur Snyder, all of 75 Fulton Street, New York, N. Y.

2. That the owner is Alfred M. Best Company, Inc., 75 Fulton Street, New York, N. Y.; and that the owners of 1% or more of the stock are: Mrs. Annie V. Ammermuller, 235 West 102nd Street, New York, N. Y.; Mildred B. Baird, 86 Prospect Avenue, Montclair, N. J.; Alfred M. Best, 75 Fulton Street, New York, N. Y.; Randolph C. Betts, Montreal, Canada; Clem & Company, Boston, Mass.; Dora H. Cox, 70 Broadway, New York, N. Y.; Crum & Forster, 110 William Street, New York, N. Y.; Flitcraft, Inc., 75 Fulton Street, New York, N. Y.; Gospel Foundation of California, Hollywood 46, Cal.; Kellogg & Company, Westfield, N. J.; Alice L. Kellogg, 615 Tremont Avenue, Westfield, N. J.; Chester B. Kellogg, 603 Tremont Avenue, Westfield, N. J.; Chester M. Kellogg, 615 Tremont Avenue, Westfield, N. J.; Frank J. and Eleanor Matre, 6167 No. Moody Avenue, Chicago, Ill.; John McElraevy, Jr., 75 Fulton Street, New York, N. Y.; Merit Company, Indianapolis, Ind.; Raymond T. Smith, 10 South LaSalle Street, Chicago, Ill.; Mrs. Raymond T. Smith, Golf, Ill.; Vance C. Smith, 20 No. Wacker Drive, Chicago, Ill.; Arthur Snyder, 75 Fulton Street, New York, N. Y.; Kathryn Snyder, Garden City, N. Y.; William E. Whitney, 139 Clifton Street, Belmont, Mass.

3. That the known bondholders, mortgagees and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages or other securities are: None.

4. That the two paragraphs next above giving the names of the owners, stockholders and securities holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees hold stock and securities in a capacity other than that of a bona fide ownership; and this affiant has no reason to believe that any other person, association or corporation has any interest, direct or indirect in the said stock, bonds or other securities than as so stated by him.

ARTHUR SNYDER.
Business Manager.

Sworn to and subscribed before me this 28th day of September, 1954.

ELIZABETH BRENNER
Notary Public, State of New York
Qualified in Kings County
No. 24-0407700
Certificate filed with New York & Kings Reg. Offices & N. Y. Co. Clerk Office
Term expires March 30, 1955

What's New...

For your convenience in obtaining descriptive literature of products listed here, use the Reader's Inquiry Card. Just write in the code number given with each item. Or send written requests to:

Service Dept.,
SAFETY MAINTENANCE & PRODUCTION

MAGNETIC SHEET SEPARATOR

(Use Key # 716 on Inquiry Card on page 67)

TO FACILITATE faster and safer handling of thin gauge metal blanks, tin plate, can lids, etc., Eriez Manufacturing Company offers the new Model SF-01, designed especially for separating very lightweight stock. The operating principle of this sheet fanner is identical to that of four progressively larger models. Placed adjacent to a stack of can lids, for example, the powerful permanent magnetic unit induces like polarity in the lids, causing them to repel each other to such a degree that the upper pieces in the pile tend to rise in the air and are sustained there, separated from one another. As each piece is taken from the top of the pile, others below it automatically move up.

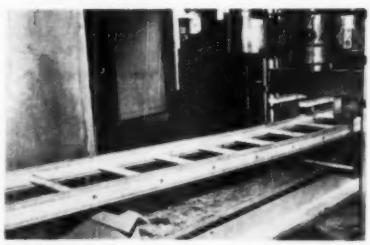
Advantages of this device are: the operator is able to take from the pile individual blanks, lids, etc., without fumbling or delay, thereby speeding up production and reducing operator fatigue; the danger of double feeding, with its attendant possibility of broken dies and resulting down time, is eliminated; the operator's hands are safeguarded from cuts and scratches.

The standard Model SF-01 sheet fanner is available in 6", 9", 12" heights, which will efficiently fan stock piles of a maximum height of 5", 8", and 11", respectively. The powerful Alnico V magnetic element is completely enclosed by a stainless steel magnet cover and stainless steel face plate, welded together. The unit is designed so it can be securely fastened to the work surface.

TOXICOLOGICAL REPORT SERVICE

(Use Key # 717 on Inquiry Card on page 67)

AVAILABLE TO industrial and governmental administrators, engineers and physicians, is a special investigation and report service on industrial hazards, air and waterborne contaminants, chemical compounds, etc. The service, offered by Emmet Technical Associates, includes a full report on any material or process, in use or contemplated for use, and is prepared for the specific requirements of the individual organization.



LAMINATED WOOD LADDER

(Use Key # 718 on Inquiry Card on page 67)

LAMINATED WOOD ladders, said to be twice as strong as the standard type having solid wood beams, have been developed by the Engineering & Laminating Corp. Key to the new ladder's greater strength is its composite wood beam construction, made possible by modern glues and gluing techniques applied to ladder construction. It is similar to that used by fabricators of glulam wood arches and trusses for the construction industry, and by shipbuilders producing modern wood minesweepers and other marine craft.

Superior strength of the laminated wood ladder is claimed to have been demonstrated in tests, in which a standard 14-foot solid beam ladder was pitted against two types of composite wood beam ladders. The solid wood beam ladder supported a maximum load of 775 pounds before breaking. One of the laminated beam ladders, composed of hickory, oak, and Port Orford cedar laminae, supported 1,510 pounds before one hickory outer layer broke. Additional loads, well beyond specification requirements, failed to produce further breakage. The other laminated beam ladder, having greenheart instead of hickory and oak outer layers, supported 1,580 before showing signs of failure.

The tests showed that unexpected breaking is unlikely because the glue lines interrupt the continuity of wood grain in the cross section. Both laminated beam ladders gave loud warning sounds of cracking before their outer layers, only, broke, then continued to support greater loads for a longer time than would be required in actual use. In contrast, the solid beam ladder broke suddenly and completely, without warning. Suitable for fire fighting and utility companies, railroads and industry. Long life expectancy, non-conductivity, and durability, are features of this improved wood product.

GLASS-FIBER HARD HATS

(Use Key # 719 on Inquiry Card on page 67)

THIS NEW LINE of fiber-glass safety hats meets general industrial requirements and Federal Specifications for electrical resistance, impact and penetration by falling objects, flammability and moisture absorption.

The full-rimmed hat, 14 oz., and the cap (with visor only, 12¼ oz.) are made in grey, white, yellow, green, and brown. A combination safety cap and arc-welding helmet is offered with either fixed or lift-front lens holder. An exclusive feature is a headband of extruded plastic with replaceable, cork-lined sweatband, said to hold its shape better and give firmer fit. Straps of webbing form the usual cradle on top of the head. Made by Jackson Products, Inc.

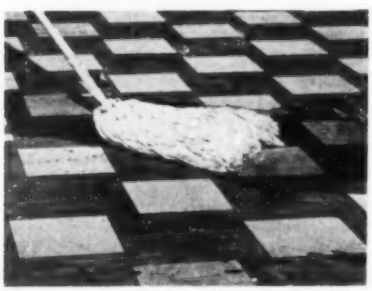
FIRE EXTINGUISHER CART

(Use Key # 720 on Inquiry Card on page 67)

TO HELP GAIN precious fire-fighting seconds, American-LaFrance-Foamite Corporation has designed a Fire Extinguisher Cart—a device for stationing various combinations of Dry Chemicals, Carbon Dioxide and Vaporizing Liquid type extinguishers at their strategic locations and for transporting them easily to the scene of the fire in the quickest possible time. There is no lifting from wall hangers. Simply grasp the cart handle and go. It is a great advantage in industry where women are trained to operate fire extinguishers.

This cart is especially useful when it is necessary for one man, such as a night watchman or a lone employee, to fight a fire. As he can carry three extinguishers instead of one, he does not have to leave a partially extinguished fire to run back for a reserve extinguisher—he has it with him to finish the job. It is handy also for holding these extra extinguishers for standby protection during welding or other operations that create fire risks.

The height of the extinguisher hanger is adjustable so that the cart may be made to hold a variety of types and sizes of extinguishers.



ALL-FLOOR CLEANER

(Use Key # 721 on Inquiry Card on page 67)

AN IMPROVED, fast-acting floor cleaner, Super Safety Cleaner with HCP, which may be used with complete safety on all types of floors, including asphalt tile, rubber tile, linoleum, terrazzo, concrete, wood and magnesite, has been announced by Multi-Clean Products, Inc. The manufacturer claims that comparative tests were made on all types of floors which proved the new cleaner to be instant-acting, powerful, yet completely safe to use.

Defined as a blend of ingredients in highly concentrated form, the cleaner with HCP additive and purest cocoanut oil base is guaranteed to contain a minimum soap solids of 26%. Mixing 1½ fluid ounces in a gallon of hot or cold water, and even in hardest water is said to do many cleaning jobs. For easy removal of ordinary wax build-ups, a solution of one gallon of water to eight fluid ounces is recommended. Also available with germicide antiseptic added, which eliminates odors and kills harmful bacteria or fungus organisms.

COLD WEATHER SOCK

(Use Key # 722 on Inquiry Card on page 67)

FOR WEAR OVER ordinary socks, this plastic foam sock of cellular material contains millions of tiny air cells that act as insulation and keep feet warm during cold weather.

They are lightweight and durable, and can be washed inside and out with warm water and a mild soap. Dry with a cloth. Plastic foam material is non-absorbent and, therefore, dries quickly. They will not stiffen or crack during cold weather.

Called Coldguard Socks, they are made by Beacon Falls Rubber Footwear for wear inside of pacs, boots and various types of rubber footwear.

COOLANT AERATOR

(Use Key # 723 on Inquiry Card on page 67)

A DEVICE CALLED the Mel-O-Flo Coolant Aerator has introduced a new method . . . offering safety, sanitary, and economic benefits . . . of applying coolants to all manual or automatic machine tools and other industrial equipment. The use of coolants on lathes, milling, grinding, and other tools is essential, but present methods of application have resulted in many disadvantages. Prime objection is the splash of coolants, from both the "bounce action" on metal surfaces and liquid thrown off by centrifugal force. Makeshift baffles and exhausts used in many plants have served only partially to keep machine operators and floors dry. The constant splash of coolants throughout the area serves as a major hazard.

The new devices, claims Melard Mfg. Corp. completely eliminates splash, offering the safety factor of dry floors, as well as effecting a savings in production and

tool life. It is connected directly to the coolant line . . . no special plumbing is needed . . . and mixes atmospheric air with the coolant, resulting in a non-splash aerated mixture. Aerated coolants cling to work and tools, throw-off is reduced, and the superior wetting action of the aerated coolant accelerates heat dissipation. This, according to the manufacturer, results in better cooling, longer tool life, and increased production. The aerated coolant leaves no vapors. No change in material or equipment is required. An important feature is the unit's built-in self-cleaning mechanism. Whenever the coolant supply is turned off, the aerator is automatically purged of chips and sludge, allowing uninterrupted machining. The unit is precision engineered, with all wearing parts manufactured to close tolerance, and hard-chrome plated for long life. Two models are available: the #600, with 12" flexible hose and nozzle; the #601, with nozzle. Both units are furnished with ⅜" pipe connectors, and have an operating range of 5-60 psi.

ORGANIC VAPOR RESPIRATOR

(Use Key # 724 on Inquiry Card on page 67)

A NEW ORGANIC vapor respirator which can be fitted with auxiliary cellulose filters to prevent clogging of the cartridges during paint spraying operations is announced by the Chicago Eye Shield Co. The filters are placed over the respirator's regular cartridges and held securely in place by the screw-type cartridge retaining rings. No tools are needed to attach or replace either the auxiliary cellulose filters or the 85 cc high absorptive capacity, free-breathing cartridges.

Known as the Cesco No. 99 Respirator, it has a soft rubber facepiece which provides a snug, leakproof fit with minimum headband tension. It rests low on the face and does not interfere with eye protective equipment which user may require.

SPRAY ANTISEPTIC

(Use Key # 725 on Inquiry Card on page 67)

CUTS, ABRASIONS, wounds of all kinds can be quickly sterilized without dabbing or swabbing. Steri-Spray Corporation offers U. S. Pharmacopia antiseptic benzalkonium chloride in a handy and useful polyethylene spray container. The wound is effectively sterilized by a gentle spray or, if necessary, thoroughly flushed clean of impurities by a free-flowing stream of the antiseptic.

The convenient container has a plastic cap and holds 3½ ounces of the germicide. It is packaged with a completely rewritten First Aid Manual giving modern methods of treating various types of injuries.

ALUMINIZED CLOTHING

(Use Key # 726 on Inquiry Card on page 67)

THIS NEW LINE contains all items of clothing, made from either aluminized asbestos or aluminized duck. The asbestos fabric is in a herringbone weave, which is said to be 50 percent lighter in weight than the standard basket weave cloth.

Aluminized fabric reflects 90 percent of radiant heat. This factor alone means that workers can operate in greater heat, and for longer periods. Add the fact that the clothing is so much lighter than previous types and the result is greatly increased efficiency. The new process for aluminizing the fabric makes the metal an integral part of the cloth. This permits unlimited flexing without cracking or peeling. American Optical Company is supplying all types of protective garments, for all types of jobs where radiant heat is a problem, in either or both of the new metalized fabrics.

WINTER LINERS

(Use Key # 727 on Inquiry Card on page 67)

A NEW HEAVY DUTY winterliner has been added to the E. D. Bullard Company line of cold weather head protection. Called the Arctic, this soft, close-woven wool-knit liner, protects the head, neck and face, covering everything except the eyes. The front portion is constructed so that it slips down over the mouth easily when not needed to protect nose and cheeks from freezing winds, rain or snow. Made to be worn with all makes and models of safety hats and caps or helmets, in combination or individually.

Other styles include two wool-knit caps. One a close fitting skull cap, the other an elastic knit skaters type, which covers neck and ears. Fabric winterliners, in sizes medium and large, snap over the leather or leatherette hammock assemblies holding the safety hat or cap firmly in place. The fabric type are rugged, wind resistant, and water repellent with a fleece or wool interior.

DRY CHEMICAL EXTINGUISHER

(Use Key # 728 on Inquiry Card on page 67)

DESIGNED FOR QUICK, easy, one-hand operation with accurate aiming control a new 5-pound Pressurized Dry Chemical fire extinguisher has been developed by the Fyr-Fyter Co. The fire-killing chemical powder is completely discharged in less than 12 seconds by the force of pressurized air or nitrogen. A new, specially designed angular diffuser nozzle spreads the chemical in a flat, dense, 10 to 12 foot long, and 60° wide angle stream. This thick blanket-like stream lays a flat pattern of powder level with the base of the fire. It covers a greater area, to smother more flames faster, and provides more heat-shielding protection for the operator.

The extinguisher is made with all-brass precision construction. The entire valve assembly and pick-up tube unscrew as a unit from the shell to simplify inspection, cleaning and recharging. The large valve unit opening in the dome also serves as the "filler" opening. A specially designed tapered shut-off pin and tapered seat are lined with hard rubber to make a leak-proof valve mechanism that positively holds the air or nitrogen pressure charge. A visual gage constantly shows pressure condition. Except after use, recharging is never necessary. Only periodic visual inspection is required. Pressurizing can be made with a service station air chuck. The extinguisher has Underwriters' Laboratories Approval, and is recommended for Class B and C fire hazards . . . all flammable liquids, gases, and live electrical fires.

GOGGLE FEATURES THREE-WAY VENTILATION

(Use Key # 729 on Inquiry Card on page 67)

THE PROBLEM OF preventing lens-fogging is attacked from three different angles in the new Penoptic Model 900 chippers' goggle manufactured by the Pennsylvania Optical Company. In addition to the usual perforations in the side shields, the new goggle is constructed to provide extra ventilation directly to the inner lens surfaces through slots in the lens retaining rings and channels in the lens seat area, as well as through wide channels between the lens retaining rings and cupwalls.

Another desirable feature is a metal reinforcing ring moulded into the inner rim of each cup to insure retainment of original cup thread dimensions under all conditions. Beveled aluminum retaining rings hold lenses securely; are threaded to permit easy lens replacement without tools. Goggle is available in brown opaque, clear or green transparent thermo-plastic cups with standard 50 mm size safety lenses.

DUST COLLECTING UNITS

(Use Key # 730 on Inquiry Card on page 67)

THREE CABINET type dust collectors equipped with extra large dust drawers are announced by Torit Manufacturing Company. All are built into a cabinet 28 inches square by 66 inches high, and with dust drawers having a 7 cubic foot capacity. Air capacities, however, range from 300 to 1100 c.f.m. depending upon the power plant.

Largest unit in this 602A series is Model No. 84. Powered by a 3 H.P. motor it develops 1100 c.f.m. with one 6 inch inlet or 525 c.f.m. from each of two 4 inch inlets. This dust collector is intended for heavy, continuous service with several small grinders and polishers, or possibly one or two extra large machines.

For lighter service, but still capable of doing long, uninterrupted duty, are the models 80 and 81. The first of these is powered with a 1 H.P. motor and develops 300 c.f.m. from each of two 4 inch inlets or 650 c.f.m. from one 6 inch inlet. Model 81 is powered with a 1½ H.P. motor and develops from 465 to 1000 c.f.m. depending upon the size and number of the inlets.

FACE SHIELD & CAP

(Use Key # 731 on Inquiry Card on page 67)

FEATURES OF THE new MSA Facegard announced by Mine Safety Appliances Company include a smoothly molded headgear cap of glass fiber-reinforced cellulose construction, bonded with weather-resistant resin, for comfort and high strength. Visors are all 12 inches wide for protection against side impact or splashes. A soft, sorbent foam-rubber sweatband, easily replaced, is said to make the headgear cap "as comfortable as an old felt hat." A rubber gasket seals space between visor and cap when visor is pulled down. A positive "any-position" friction joint stops and holds visor at any desired angle over a 200° arc. Aluminum binding protects all .020 and .030-inch thick visors. (Visors .060 inch thick are unbound.)

Clear visors are available in 6- and 8-inch lengths, in .020- and .060-inch thickness. Medium green visors (shade 3) are offered in 6- and 8-inch lengths, in .020 and .060-thicknesses. An 8-inch long wire screen visor also is available.

HAZARDOUS GAS ANALYZER

(Use Key # 732 on Inquiry Card on page 67)

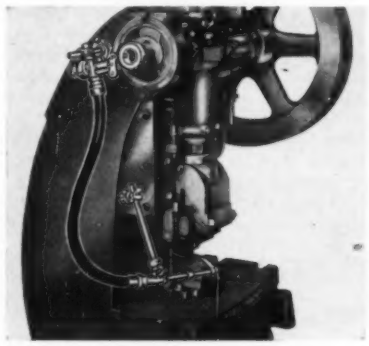
FOR ACCURATE detection of toxic or combustible gases in extremely low concentrations, Taller & Cooper, Inc., have produced a Supersensitive Gas Detector. Capable of indicating gas concentrations as low as 5 parts per billion, it uses the most sensitive method of analysis known—the detection of mercury vapor in ultraviolet light. Designed for laboratory gas analysis and for continuous monitoring of industrial areas.

A vacuum pump draws known and unknown gas samples through two parallel detection loops, each composed of a filter unit, stainless steel pre-heater coil, reaction chamber and photometric measuring cell. Each of the parallel reaction chambers contains a charge of activated Mercuric Oxide which reacts with the gaseous reducing material in the sample to generate mercury vapor. The photometric measuring cells detect the difference in mercury concentration between the unknown sample and the "zero" sample and register it as a reading on a galvanometer. Available in several models.

AIR BLAST VALVES

(Use Key # 733 on Inquiry Card on page 67)

DELAYED ACTION air blast valves have been introduced to the F. J. Littell Machine Co. line of production tool valves. These valves are built to blow after the cam has passed over the valve roller. The delayed action valve is required on compound blanking dies and similar jobs where



stamping is freed right at the top of the press stroke. They are available with hose, mounting brackets and nozzle assembly and cam or cam strap.

A full line of sub-assemblies is also available, as well as various parts. These assemblies, when attached to punch presses provide automatic ejection of parts, afford marked savings in costs, air, time and safety to press operators.

TELESCOPING SPLINTS

(Use Key # 734 on Inquiry Card on page 67)

TELESCOPIC all-aluminum Thomas Universal splints have been introduced by Barwel Mfg. Co. The new assembly has a three position locking device which allows extending solid shafts from thirty-one to 49 inches. The collapsible features and light weight (only 17 ounces) embodying all the rigid requirements make the new device especially attractive in the fields of industrial safety, first aid and civil defense. Earlier types of Thomas half ring splints, owing to their fixed lengths coupled with their weight, presented hazards and handling difficulties on the scene of a major accident where injured groups required immediate splinting.

The aluminum parts are anodized to prevent oxidation and the two layer padded cushion of 100% firm belt are mildew treated and whipped stitched to the half ring. The half ring rotates 80 degrees in either direction. Selected horsehide leather, mildew treated, covering the felt padding, is baseball stitched. After the leather cushion is worn out and not suited for further use, the return of splints to the factory has been eliminated by the development of a new vinyl cell plastic skinned cushion which may be slipped on the half ring without swiveling. A further improvement to insure safe transportation of litter cases is a new foot rest which may be used in combination with the telescopic splint without removal of storm or arctic boots in extreme cold or sub-zero locations.

A single attendant may apply traction from beyond the foot rest without fear of slippage. In addition it offers maximum security in that the splint shafts cannot slip out from the tapering slots. Other types of foot rests receive the shafts on the outside of a foot support requiring canvas slings or other means of supporting legs. The product has been field tested for over eight years by the combined U. S. Medical Armed Services and standardized by the government.

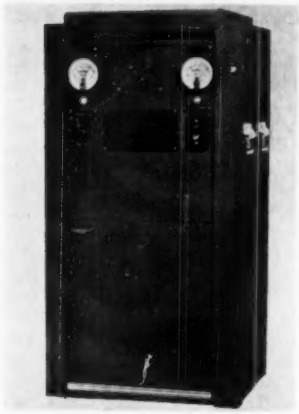
NEW HYDRAULIC SWITCH

(Use Key # 735 on Inquiry Card on page 67)

AN HYDRAULICALLY operated electrical switch, called Hydratube, self-contained in a ½" diameter flexible plastic tube is announced by the Recora Co. The switch is characterized by its ability to follow contours in three dimensions. The flexibility of the plastic tube allows it to be bent in excess of 90° without impairing operation of the switch. Sensitive throughout its entire length, an adjustable contact allows sensitivity to be set within broad limits. Adjustment can be made so that pressure as low as only 1 oz. will actuate the switch, when installed on a horizontal plane. The capacity of the palladium contacts is approximately 1 ampere when switch is adjusted to require 6 to 8 oz. pressure.

Available in standard lengths of 6 ft. and 12 ft., lengths up to 300 ft. can be made to order. Hydraulic fluid is per-

manently sealed in plastic tube, and refilling is never required. Although it can be used without additional covering, a special rubber extrusion is available for mounting on flat, round or uneven surfaces. Suitable for use as a safety edge on electrically operated doors in public and private garages, elevators, etc.; a control device on long machines such as presses, planers, etc.; and as an automatic cut-off control on conveyor lines. It can be used anywhere an extended length sensitive switch is required for automatic or manual control.



ULTRASONIC CLEANING GENERATOR

(Use Key # 736 on Inquiry Card on page 67)

A NEW HEAVY-DUTY, 2 KW Ultrasonic Power Generator, the Sonogen 2,000, has been announced by the Branson Ultrasonic Company, division of Branson Instruments, Inc. The generator is said to speed up cleaning and degreasing of parts made of metal, rubber, plastics, glass, ceramics, etc. The 2,000 watt output is fed into a barium titanate transducer at 100,000 cycles per second. The transducer, immersed in the cleaning solvent, converts the radio frequency of 100,000 cycles per second into mechanical vibrations which set up a violent agitation in the solvent, literally shaking dirt and grease loose almost instantly.

Suitable for cleaning electric motor, watch and instrument parts, steel and jewel bearings, control mechanisms, timing devices, glass tubes, quartz crystals, and intricately shaped parts with threaded blind holes and small recesses difficult to clean conventionally. For example—knurled parts formerly requiring ten minutes of conventional rinsing are now cleaned in ultrasonically agitated solvent in just two seconds. In many cases even insoluble material has been knocked loose by the minute but high speed agitation supplied by the transducer. The equipment has also safely and remotely decontaminated parts and equipment that have become radio-active.

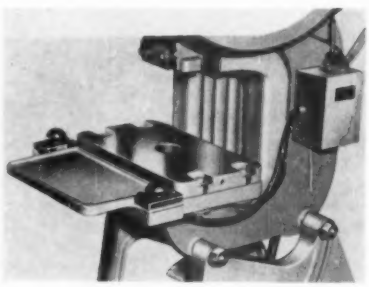
A single generator can drive a transducer with a surface area of 70-100 square inches, or several smaller transducers with the same total area. Because the transducers can be laid in a tank of any size, large pieces of equipment can be cleaned ultrasonically by moving them over the relatively small active, focal area of the transducer. Long cables between the power unit and the transducer facilitate installation in conventional vapor-degreasing systems. In addition to cleaning, it is an economical source of ultrasonic power for many other laboratory and production uses involving liquids—such as emulsification, dispersion, and the acceleration of chemical reactions. It is cooled by forced air, is 43" high by 23" wide by 18½" deep, and weighs approximately 350 pounds. Also available is an earlier, 500 watt generator.

RUST CONVERTER

(Use Key # 737 on Inquiry Card on page 67)

A LIQUID which chemically converts rust into a protective iron phosphate coating is available through the Municipal Steel Corp. New to America, FerRoSeal is a patented process and the registered trade name for one of the products developed by the Walterisation Co., Ltd.

According to the distributor, a rusted surface treated with the compound is a better base for paint or coatings than clean, bright steel, because iron phosphate is the best known such base. It is claimed that this process eliminates the need for sand or shot blasting, or acid pickling, and requires only wire brushing to remove scale and loose rust. Subsequent water rinsing is also said to be unnecessary because there are no harmful chemicals which must be washed off. Extension of paint life three to five times by the chemical's action as a seal and bond against further rust and corrosion, is claimed on the basis of laboratory tests, including; corrosion examinations, using natural weathering; exposure to various industrial and marine atmospheres; and accelerated tests such as salt spray and/or humidity. It is not an additive, and is said to work in harmony with coal tar products, asphaltum, gilsonite, vinyls, silicons, neoprene, zinc base materials, and other coatings as well as paint. One gallon covers a metal surface area of about 1000 to 1500 square feet, depending upon the thickness of the rust layer.



ELECTRO-SOLENOID GUARD

(Use Key # 738 on Inquiry Card on page 67)

A TWO-HAND electro-solenoid control is announced by Searjeant Metal Products Inc., as an addition to their line of punch press safety equipment. It comes completely assembled, is made in several sizes and can be easily installed on almost any make or size of press. When the control is installed it is necessary for the press operator to push two mushroom type buttons in order to trip the press. Both buttons must also be released to trip the press again. This safety feature is accomplished by back contacts on the push buttons and means that both hands of the press operator must be out of the danger zone while the press is set in motion. The operator cannot hold or tie down one button and trip the press with the other.

More push buttons can be added for installations where more than one operator is at the press. A foot control can be plugged in when it is necessary to operate the press in the conventional manner for blanking or similar operations and the control set so that the press can be run in continuous motion. The device fails safe, rendering the press inoperative because of any electrical failure.

What's YOUR Problem?

- **Has an accident or fire interrupted production?**
- **Want to know how to prevent it?**
- **Do you need background information on equipment for industrial safety, hygiene, or maintenance?**

As a service to its readers, "Safety Maintenance" will arrange to supply manufacturers literature on the following subjects. Just insert the key number on the Readers Inquiry Card on the opposite page and be sure to fill in your name and address. If you need information on a specific type of product, simply write it in on the Inquiry Card.

Key Number	Subject
101	Safety Goggles
102	Face Shields
103	Lens Cleaning & Anti Fogging Equipment
104	Sweatbands
105	Hard Hats
106	Respirators & Masks
107	Protective Clothing
108	Women's Protective Clothing
109	Safety Belts
110	Safety Gloves
111	Safety Toe Shoes
112	Safety Boots
113	Wooden Sole Shoes
114	Anti-Slip Soles
115	Oil-Proof Soles
116	Welding Helmets
117	Welding Curtains
118	Protective Skin Creams
119	Skin Cleansers & Soaps
120	Hand Drying Equipment
121	Sanitary Drinking Cups
122	Athlete's Foot Control
123	Salt Tablets
124	Noise Control
125	Antiseptic Medication
126	Burn Medication
127	First Aid Kits & Supplies
128	Stretchers & Litters
129	Resuscitators
130	Portable Ventilators
131	Dust & Fume Collectors
132	Carbon Monoxide Control
133	Fire Extinguishers
134	Safety Cans
135	Fire Pump Equipment
136	Alarms & Warning Lights
137	Safer Solvents
138	Flammable Liquid Pumps
139	Explosion-Proof Lights
140	Safety Gasoline Tanks
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142	Anti-Slip Waxes & Finishes
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144	Floor Machine Equipment
145	Oil & Grease Absorbents
146	Paints
147	Ladders & Safety Devices
148	Scaffolds
149	Work Platforms
150	Fluorescent Lamp Guards
151	Machine Guards
152	Power Press Feeders
153	Safety Signs
154	Aisle Marking Equipment
155	Safety Awards & Emblems
156	Employee Safety Guide
157	Hand Tools

FREE BULLETINS & CATALOGS

As a convenience to executives, these new publications of manufacturers are offered by the Reader Service Department of SAFETY MAINTENANCE & PRODUCTION. To obtain copies write in the key numbers on the free-postage card below.

HYGIENE & MEDICAL

Sound-Level Meter **508**
Hermon Hosmer Scott, Inc. Bulletin gives specifications of portable sound level meter for measuring overall intensity of noise and sound. Has vibration measuring accessories for vibration acceleration, velocity and displacement. Meets American Standards Association requirements.

Burn Ointment **509**
Pac-Kit Co. Burn ointment for fire burns, electrical and welding burns, friction burns, scalds, sunburn and windburn described in folder. First aid treatment for various types of burns included.

Skin Toughener **510**
Onox, Inc. Bulletin, quoting doctor's report on cause of athlete's foot, shows how skin toughener prevents athlete's foot by restoring the skin's natural resistance to fungus attack.

Barrier Cream **511**
Ayerst Laboratories. Booklet discusses barrier cream to protect workers from contact dermatitis due to primary irritants (acids, alkalis, solvents, oil) and sensitizing agents (nickel, rubber, chromates, poison ivy). Gives list of many irritants and the type of cream recommended.

PERSONAL PROTECTION

Acid Resistant Clothing **512**
Worklon, Inc. Catalog shows line of acid and caustic resistant clothing made of Orlon and Dynel synthetic fabrics. Includes shirts, pants, coveralls and coats. Testing data giving resistance of fabrics to specific chemicals shown.

Safety Apron **513**
Geo. H. Bowman, Jr. An apron which is held in place by means of a cadmium plated spring wire frame subject of bulletin. There are no strings or snaps—the apron is slipped on, and pulls off easily should any part be caught. General-duty and acid-resistant types available.

Leggings **514**
Safety Clothing & Equipment Co. Line of safety leggings—leather, asbestos, flameproofed duck and neoprene coated duck—pictured in pamphlet. Also shin, foot and pant guards and mesh type legging. Many styles shown including ankle, knee and hip lengths.

Spectacle with Acetate Frame .. **515**
U. S. Safety Service Co. Bulletin shows safety spectacle with acetate frame which permits adjustment of detachable side shields. Frame is non-sparking and non-flammable. Impact resistant plastic lens makes spectacle lightweight. Meets federal specifications.

Plastic-Coated Gloves Reconditioned **516**
U. S. Industrial Glove Corp. Booklet describes process for reconditioning plastic-coated gloves, even when torn or cut. Worn gloves are repaired and re-coated to retain original oil, grease and acid resistance. Company also reconditions many other articles of clothing of various materials.

MAIL POSTAGE PAID CARD FOR MORE DATA

BUILDING MAINTENANCE

Ice Remover **517**
Monroe Co., Inc. Catalog sheet describes chemical pellets used for ice and snow removal. Application methods, expected results and importance of rust inhibitor and heat-retaining agent noted. No residue following use.

Water Resistant Wax **518**
Hillyard Chemical Co. Pamphlet shows how maintenance costs reduced by use of water resistant, long-wearing floor wax. One waxing said to replace 3 to 6 waxings with other waxes, reducing number of strippings. Listed by Underwriters' Laboratories.

Floor and Wall Tile **519**
Flintkote Co. 34-page booklet gives information on asphalt tile, industrial floor tile, greaseproof resilient floor tile, vinyl plastic-asbestos floor tile, plastic-asbestos wall tile, underlayments and adhesives and general information and photographs of installations.

MACHINERY MAINTENANCE

Safety Solvents **520**
Fine Organics, Inc. Folder deals with a fast and a slow drying solvent with high flash point, stability, no residue, low toxicity and no dermatitis. Specifications and suggested uses noted. Special purpose solvents also listed.

Machine Mountings **521**
Robinson Aviation, Inc. Control of vibration and shock based on the use of resilient, primary load-carrying knitted metal wire cushions subject of booklet. Typical industrial mounts and mounting systems illustrated and engineering data given.

FIRE PROTECTION

Sulfur as Fire Hazard **522**
Ansul Chemical Co. Details about the handling of sulfur in various forms from the point of view of use and storage discussed in technical bulletin. Extinguishment of sulfur fires treated and the use of dry chemical extingushers along with other extinguishing agents explained.

Safety Tanks **523**
American Safety Tank Co. Crash resistant, spill proof, non-explosive truck fuel tanks shown in broadside. Complete specifications and installation designs and instructions given. List of accessories and mounting brackets also covered. Listed by Underwriters' Laboratories.

MATERIALS HANDLING

Handling Chlorine **524**
Columbia-Southern Chemical Corp. 26-page brochure deals with methods of shipment, handling, storage, removal from, care and return of containers of chlorine. Methods for leak detection and repair included as well as first aid measures.

Ratchet-Lever Hoist **525**
Coffing Hoist Co. Bulletin describes line of ratchet-lever hoists, including roller and coil-chain models, with capacities from ¾ to 15 tons. Ratchet-pawl construction that eliminates friction brakes and quick disassembly of coil-chain hoists featured.

(Continued next page)

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NOVEMBER 1954

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Company Name _____

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City _____ Zone _____ State _____

Free Bulletins (Cont'd)

Sling Hook **526**
S. G. Taylor Chain Co. Sling and grab hooks subject of bulletin. Complete specifications listed and features such as I-beam construction, large eye and shock resistance noted.

Adjustable Dock Ramps **527**
Rowe Methods, Inc. Details of a manual floating 10,000 lb. capacity hydraulic adjustable ramp for loading docks given in bulletin. May be used to adjust dock to truck or truck to dock to facilitate loading and unloading.

Maintenance of Trucks **528**
Elwell-Parker Electric Co. Reprints of an article dealing with "Preventive Maintenance for Industrial Trucks." Explains the importance of lubricants and correct lubrication and enumerates principal causes of equipment failure and breakdown. Includes suggested maintenance forms and a preventive maintenance check list.

MISCELLANEOUS

Changeable Letter Signs **529**
Wagner Sign Service, Inc. Catalog of bulletins shows several different styles of changeable letter displays and mounting equipment. Letters may be metal or plastic and free standing or locked to a rail. Many typical signs and displays shown and a list of slogans is given.

Pipe Markers **530**
W. H. Brady Co. Self-sticking pipe markers that stick to pipes from 300 degrees F. hot to –300 degrees F. cold subject of bulletin. List of stock wordings given. Meet specifications of American Standards Association.

Intercommunication System **531**
Farmers Engineering & Mfg. Co. A single system which can be used for conversation and paging is shown in bulletin. Each station in the system hears each call saving time and trouble communicating with large numbers of people. Installation data and suggested layouts given.

Wiper Quality Chart **532**
Charles Belsky & Sons, Inc. To help various concerns select the type of wiping cloth best suited to their needs, this large chart analyzes and compares the wiping qualities of 21 types of wiping cloths. Shows absorbency, lintlessness, softness, durability, weave, shape, size, etc.

Two-Lever Coordination Control **533**
Pantex Mfg. Corp. File of application engineering data on a two-lever coordination control for air-actuated presses and other equipment and processes. Shows methods of arranging latch and release mechanism for various simultaneous and sequent operations of the two levers, and also arrangement in series or parallel.

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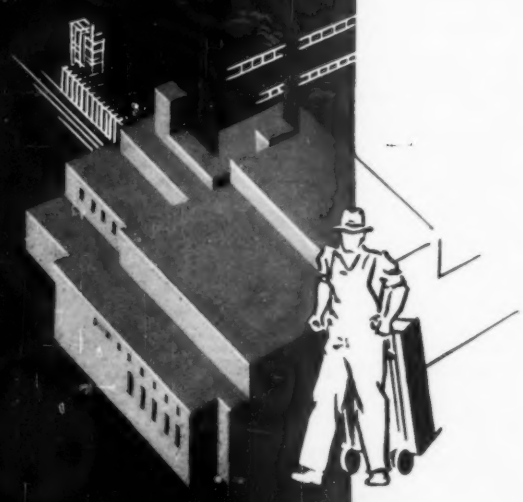
Denver 4, Colorado

"Signs Since 1863"

ACCIDENT PREVENTION • *steel* SIGNS IN STANDARD COLORS AND DESIGNS

(For details, use Key # Y-37 on card on page 67)



Thantis® LOZENGES

first aid for throat irritations

SORE THROATS due to coughs and colds, if neglected, may result in lost man hours of work.

THANTIS® Lozenges contain no antibiotic; they produce no unpleasant by-reactions in the mouth.

THANTIS Lozenges relieve pain promptly—reduce infection—act prophylactically.

Twenty-three years' extensive clinical and lay use has proved the safety and effectiveness of this popular product.

®*Reg. U. S. Pat. Off.*

Mercurochrome®

First aid for wounds . . .

Neglect may cause infection which can be prevented by prompt use of 'Mercurochrome.'®

No antiseptic has been proved to be more effective than 'Mercurochrome' for topical application.

HYNSON, WESTCOTT & DUNNING, INC., BALTIMORE 1, MARYLAND

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